

THE RAILWAY GAZETTE

A Journal of Management, Engineering and Operation
INCORPORATING

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DIESEL RAILWAY TRACTION SUPPLEMENT

The March issue of THE RAILWAY GAZETTE Supplement, illustrating and describing developments in Diesel Railway Traction, will be ready on March 1, price 1s.

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list, and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 a.m. till 5.30 p.m.

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards.

British Railways and Civil Aviation

IN the House of Commons on January 26 during a debate on civil aviation, Sir Stafford Cripps stated that the new Minister of Civil Aviation, Lord Swinton, was in touch with the railway and shipping companies, and was discussing with them how best they could make their contributions to the progress of civil aviation. The railway companies' air plans have already been made public and according to reports in the *Daily Mail* and other newspapers a completely new framework for Great Britain's post-war air services has been produced. Revised plans, it is reported, have been put forward by the main-line railway companies and are being considered favourably by the Government. Part of these plans, it is suggested, will entail the formation of a new company, embracing railways and shipping lines, to operate internal and Continental air services. A Government decision on these lines would entail modification of the "chosen instrument" policy which gave British Overseas Airways Corporation a virtual monopoly of airline operations abroad. It is generally expected that Lord Swinton will announce the result of the talks with the railway and shipping companies before he leaves this country at the head of a British delegation to the Air Transport Conference in South Africa next month. No official statement has been made at the time of going to press, and in some quarters it is believed that the new railway and shipping organisation which would take the place of Railway Air Services Limited is about to be registered.

The Home Railway Dividends

The major controlled railway undertakings are making distributions on their junior stocks for 1944 at the same rates as those for 1943. The first of the main lines to make known its earnings and dividend was the L.M.S.R. As was recorded in our February 9 issue, the ordinary stock is receiving 2½ per cent. The London & North Eastern Railway Company reports net revenue £10,753,279 for 1944, or £97,838 more than for 1943. With a profit of £35,066 on realisation of investments and the balance brought forward of £80,110, the total available for appropriation is £10,868,455. This compares with £10,869,336 for the previous year, when the profit on realisation of investments was £135,419. This company is again placing £200,000 to contingency fund. The 4 per cent. second preference stock is to receive a final dividend of 1½ per cent., making 2½ per cent. for the year, and £81,479 is carried forward. The Great Western Railway returns a net revenue of £6,940,129, an increase of £147 over that for 1943. The sum available for distribution including the amount of £293,453 brought forward is £7,233,582. The balance available for ordinary dividend is £2,243,813, and after again bringing the dividend on the consolidated ordinary stock up to 4½ per cent. for the year, the balance carried forward is £311,975. The net revenue of the Southern Railway Company for the year 1944 was £7,000,052, an increase of £866 as compared with 1943. The amount available for ordinary stocks was £2,091,209 and the directors again recommend payment in full on the 5 per cent. preferred ordinary stock, and of 2 per cent. on the deferred ordinary stock. The balance carried forward is £82,074, which compares with £85,602.

Less for L.P.T.B. "C" Stock

The preliminary statement of financial results by the London Passenger Transport Board for the year 1944 shows that for the whole of the year London Transport "C" stock is to receive a total of 3 per cent. compared with 3½ per cent. for 1943. The rate of 3 per cent. is the same as that for 1942, and it was explained last year that the increase of ½ per cent. had been made possible by an exceptional payment from the Railway Control Pool in respect of 1940. The net revenue of the Board for 1944 was £4,673,286, which compares with £4,747,280 for the previous year. The reduction of £73,994, it is stated, was accounted for almost wholly by a decrease of £51,890 in the special credit arising from the accounts for the year 1940, and of £21,144 in the sum brought in from the "C" stock interest fund.

A Public View on Railway Nationalisation

In view of the intensive propaganda which has been waged for a number of years in support of nationalisation of the railways, a recent Gallup Poll reported in the *News-Chronicle* on the subject gave some interesting figures. To the question posed to a number of men and women throughout Great Britain as to whether they would approve or disapprove of the nationalisation of railways, it is stated that 54 per cent. said they would approve, 26 per cent. said they would disapprove and 20 per

cent. said they did not know. Of men asked, 59 per cent. said they approved and 31 per cent. said they disapproved. It may be significant that it is stated that "only in the upper income group was there a majority against nationalisation, 54 per cent. being opposed." Support for nationalisation was based mainly on two grounds: if the railways were owned and controlled by the public, greater efficiency and better conditions for railwaymen would be secured; all essential services should be nationalised. Opposition was based on the viewpoint that competition was good, and that in any case there were enough controls, enough forms and enough officials. The poll was conducted by the British Institute of Public Opinion.

The Railway Situation in France

As Mr. Joseph C. Crew, Acting U.S.A. Secretary of State, pointed out three weeks ago, some of the initial French gratitude for liberation turned to dismay when the inevitable things that go wrong in war began to go wrong in France, notably with the condition of internal transport. France is still a supply area behind the principal battle line of the major Anglo-American effort to destroy the enemy, and must remain so. Probably with the object of dispelling the lack of realism which appears to exist in certain French circles, an announcement was made by S.H.A.E.F. on February 16 pointing out that French and American engineers working together have restored thousands of miles of destroyed French railways, and considerable quantities of rolling stock to meet both military and civilian needs. The Military Railway Service has rehabilitated some 30,000 French railway wagons, and repaired and returned to the French National Railways 1,822 locomotives. In addition, 1,539 steam locomotives, 130 diesel locomotives, and 20,640 goods wagons of all types have been taken to France from the U.S.A. (often *via* England) and some 600 more locomotives are due soon. It has been the policy to return railways to civilian control as soon as possible, and the French now have the exclusive use of railways west of Paris excepting for one from Cherbourg, which is operated by the Army as a vital war supply line. On page 190 we review the railway situation in France in the light of the latest available information.

The Institute of Distribution

The Institute of Distribution, which was incorporated a few months ago, and of which the President is Dr. E. Leslie Burgin, one-time Minister of Transport, has issued its first Bulletin and Plan of Operations. The Institute has the object of providing the answer to the many who declare that there is need for a scientific clearing house for information and statistics for those engaged in conveying goods from their source of origin to their destination, and who wish to keep costs of distribution within bounds. This is an ambitious project, for practically every manufacturer, producer, distributor, and indeed every member of the public, is in some way affected. To carry out the projected work the Institute is inviting support for individual or corporate membership on the basis of a membership subscription of £3 3s. and a corporate membership subscription of £10 10s. a year. It is stated that the memorandum and articles of association of the Institute as a limited liability company have been accepted by the Board of Trade and that registration will shortly be effected. It is hoped that the first annual general meeting of members will take place in about two months' time.

Intensive Railway Construction in Brazil

According to recent information which has reached us from the U.S.A., interest in Brazil over the \$33,000,000 four-year (1944-47) programme for completing the first longitudinal railway link between northern and southern Brazil is comparable with that in the United States when the first transcontinental railway was completed with the driving of a golden spike on May 10, 1869. Reports received by the U.S.A. Department of Transportation, Office of the Co-ordinator of Inter-American Affairs, indicate that there are at present some 10,000 men working northward on the 335-mile gap between Montes Claros and Contendas, and 3,000 men working southward to meet them. This is one of the two missing gaps in the chain of railways connecting Rio de Janeiro with Natal in the north. The Central of Brazil Railway, which is in charge of construction on the 146-mile stretch between Montes Claros and Monte Azul, has had trains in operation 38 miles north of Montes Claros, to Burarama, since July 10 last, and has now announced the early inauguration of service on the 45-mile section north of Burarama to Janauba Station. The National Railway Department of Brazil, which is in charge of rail construction on the 189-mile section between Contendas and Monte Azul, has trains in operation to Uburanas, 20 miles south of Contendas, and expects soon to

establish a service 8 miles further south to Brumado Station. Thus, the original gap of some 335 miles will soon be reduced to less than 225 miles.

Aid to China by Land Once More

"The first part of the order I received at Quebec has been carried out. The land route to China is open." This briefly-worded despatch from Admiral Lord Mountbatten announced to the world a great achievement after nearly three years of fighting and toil since the Burma Road was closed by the Japanese invasion of Upper Burma in April, 1942. It is true that the capacity of the road before that date was only about 17,000 tons a month, and that air transport over "the hump" has carried 20,000 tons a month to China from India, but we are assured that the newly-created Yunnan-Burma Highway Engineering Administration has been busy widening and improving the road and rebuilding the 30-mile length of it which had to be demolished to delay the Japanese advance into Yunnan. It may, therefore, now be capable of carrying considerably heavier traffic. Conditions for aid to China, however, are very different from those of three years ago. Then the Burma Road was within about 560 miles by rail of Rangoon, a first class port. Now all supplies from the U.K. or U.S.A. have to go to Calcutta, be railed thence to Ledo, a matter of probably 800 miles, and then be carried 478 miles by road before the Burma Road is reached. This latter distance is made up of the Stilwell Road from Ledo to Myitkyina, 254 miles, and a further 224 miles of improved roads onwards *via* Bhamo and Namkham to the China Frontier near Wanting. This roundabout route may have to be followed for some time, as, even after the reconquest of the whole of Burma, the railways and port of Rangoon are bound to require heavy repairs and re-equipment before the direct route can be reopened.

Unusual Viaduct Construction

Elsewhere in this issue we publish a description of the somewhat unorthodox methods adopted for the construction of a railway viaduct 3.6 miles in length across a marshy spillway in the Southern States of America. So boggy was the soil that ordinary means of haulage were ruled out, and railway service lines on embankments, though carried on continuous mattresses of sleepers, had to be stabilised by lifting the track 6 in. on to a roadbed of sand, gravel, and cement, which became hydrated by the ooze from the soil in the formation, and formed a concrete raft throughout the length of the viaduct. By reason of the 600 odd spans and nearly 600 of their supporting trestles being, respectively, similar in design, it was possible to use special steel shuttering for repetitive concrete pouring, with consequent marked economy. Each trestle was founded on 24 wooden piles, of which 14,000 were used, involving 739,000 lin. ft. of pile-driving, all on a batter. Seven men only were employed for this driving, but an average of over 100 piles were driven daily, at a cost of less than 3d. a lin. ft. The whole of the pile-driving equipment and the overhead gantry for concreting were designed and built by the contractors most economically. As a result, the total cost of the completed structure was under £29 a lin. ft., excluding permanent way. The travelling pile-driver and gantry running on tracks spaced 75 ft. apart, together with the use of the excavation spoil to form embankments for these tracks, show considerable ingenuity on the part of the contractors.

American Restaurant Cars in Wartime

In adapting their restaurant car service to wartime conditions, American railways have had many problems to solve. One arises from the fact that the average dining car, with kitchen at one end, seats only 36 passengers, the British practice of coupling open vestibule cars to the kitchen car, for the simultaneous service of a large number of meals, never yet having been adopted in North America. On the Santa Fe, it is nothing unusual for one of these 36-seater cars to serve 700 meals in a single day—300 breakfasts, 150 luncheons, and 250 dinners. The Union Pacific and Southern Pacific now serve only two meals in their cars, breakfast and dinner; lunch has been cut out. Menus have been simplified, and *a la carte* service has been abandoned. The Southern Pacific, which operates 135 dining cars, has converted 15 lounge cars into dining units, has borrowed 12 cars from other lines, and still estimates that it is short of 50 cars; many of the cars, too, make a double journey in the day instead of their previous single journey. From some of its lounge cars the Union Pacific has removed all the furnishings, and has installed instead a long lunch counter, with coffee urn and refrigerator, for the service of coffee, soft drinks, box lunches, sandwiches, doughnuts, sweet rolls, fruit, and other food; these cars are operated in dining car trains as auxiliary to the dining car service. In various towns the Union Pacific station

restaurants have been closed to townspeople who are not travellers, so as to conserve rationed food for the company's own track maintenance forces. Much volunteer help has been enlisted, not only for service in station restaurants but also on the trains.

Standardising Refrigerator Wagons

A committee recently has been studying the design of refrigerator wagons in the United States, and its findings have aroused wide interest among railways, agricultural and similar organisations, and the Government Departments concerned, all of which have shown a disposition to co-operate. The movement of fresh fruit and vegetables in the U.S.A. is considerable, and the distances covered are very great; the number of refrigerator wagons, or "reefers," as they are generally called, is therefore correspondingly large. The committee is in favour of the standardisation of dimensions, to facilitate the loading of packaged commodities. In accordance with American practice, the wagons are all bogie vehicles; it is recommended that the clear internal dimensions be 33 ft. 3 in. long between bunkers, 8 ft. 3 in. wide, and 7 ft. 9 in. from floor to ceiling. Steel wheels, easy-riding bogies, and improved draught gears are proposed as standard, to permit the operation of this stock at speeds as high as the passenger services. It is recommended that water ice be still the refrigerant used, with end in preference to overhead ice-bunkers, as the latter raise the wagon centre of gravity, increase maintenance costs, and give difficulty when heating instead of refrigeration is needed. In this connection the committee suggests that the railways should investigate the possibility of fitting some thermostatically-controlled form of heating to refrigerator wagons for use if necessary to maintain an even temperature on long journeys between hot and cold areas of the country. Each wagon should be equipped with a blower-pipe fan, belt-driven from one of the axles, and also with temperature-indicating devices visible from two different points outside the wagon.

New Zealand Railways and the Future

Traffic on the New Zealand Government Railways has increased considerably during the war, and for 1943-44 a record gross revenue of over £15 million was attained. In an article published on another page, Mr. George Stewart, who was Publicity Manager, New Zealand Government Railways, from 1927 to 1940, states that, although this can be attributed in part directly to war conditions, there have been contributory factors, such as the increase in the country's secondary industries since 1935, Government policy in relation to road services, "truck-rating," and improvements in train comfort. Mr. Stewart makes the suggestion that New Zealand may look for a possible increase in population by immigration after the war, and that this and attendant potential developments may place a considerable strain on the existing railway system. He suggests a number of works and improvements to which urgent attention should be given when peace returns, although he feels that progress will always be hampered while the railways are tied to the 3-ft. 6-in. gauge. Among general changes, he advocates the laying of heavier rails, improvements in traffic control and signalling, doubling of tracks, and extended use of railcars and of electric traction. Portions of the article may be read profitably in connection with the railway map of New Zealand published in our September 17, 1943, issue.

Regulating Locomotive Draught

A penalty for the harder working of locomotives under war conditions is what is known as "cinder cutting" of tubes, flues, superheater units, and smokebox fronts. This is considerably worse in the United States and Canada than in this country, because it is customary in North America to work locomotives with longer cut-offs than here, and consequently to use a sharper blast, which tends to draw cinders through the tubes with the hot gases, and is wasteful of fuel in addition to the harmful effect of the erosive cinder action. To meet this problem, the Grand Trunk Western, a subsidiary of the Canadian National Railways, is experimenting with an automatic draught regulator and back pressure governor, which, it is claimed, is giving excellent results. This device makes it possible to exhaust the steam at predetermined pressures, and relieves back pressure in excess of that necessary to provide sufficient draught; this relief increases the mean effective pressure in the cylinders. A blast nozzle of reduced diameter can be fitted, assisting the draught when the engine is starting without sharpening the blast to an excessive degree when speed has been attained. Draught and back pressure, it is claimed, are controlled in the degree required by the rate of firing on the firegrate, and a definite scale of boiler efficiency can be maintained. With the use of the draught regulator, cinder-cutting has been reduced.

London Midland & Scottish Railway Company

THE full report for the year 1943 which has now been issued is again in the abbreviated form authorised by the Minister of War Transport. It states that the two Bills to authorise the closing of certain of the canals of the company and the supply of water from the Shropshire Union Canal have received the Royal Assent. The net revenue of the company for the year amounted to £15,679,214, a decrease of £6,395, and after setting aside £400,000 for wartime contingencies and meeting interest on debenture stocks the balance available for dividend, including £87,008 brought forward from 1943, is £10,927,052. After payments at the full rates on the guaranteed and preference stocks, this will admit of a dividend of 2½ per cent. on the ordinary stock, and leave £72,608 to be carried forward. Dividends on the ordinary stock for the past ten years follow:—

1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Nil	1½	1½	Nil	1½	1½	2	2½	2½	2½

Results for the past three years are given in the following comparative table:—

	1942	1943	1944
Total expenditure on capital account ...	462,480,127	462,853,797	462,763,212
Joint lines—Company's proportion of net revenue ...	112,725	112,725	112,725
Miscellaneous receipts (net) ...	*783,759	*776,342	*766,929
Net revenue ...	15,589,883	15,685,609	15,679,214
Interests on debenture stocks ...	4,439,170	4,439,170	4,439,170
Dividends on guaranteed and preference stocks	8,474,383	8,474,383	8,474,383
Balance after payment of preference dividends	2,676,330	2,772,056	2,765,661
Dividend on ordinary stock ...	2,380,061	2,380,061	2,380,061
Rate per cent. ...	2½	2½	2½
Wartime contingencies ...	400,000	400,000	400,000
Surplus or deficit (+ or -) ...	-103,731	-8,005	-14,400
Balance brought forward from previous year ...	198,744	95,013	87,008
Balance carried forward to subsequent year ...	95,013	87,008	72,608

* Other than those included in financial arrangements with Government

The miscellaneous receipts (net) include interest and dividends from investments in other undertakings, general interest, and profit on the working of the Northern Counties Railway (Ireland). The profit on this railway was £225,758 in 1944 compared with £236,963 in 1943. The return from passenger road undertakings was £450,203 against £447,508, and from associated road goods undertakings £53,112 against £52,614.

The balance sheet shows that payment to the trust fund in respect of arrears of maintenance, in terms of the Railway Control Agreement, amounts to £28,949,982, compared with £21,667,959 a year before.

Safety in Air Transport

IN a recent letter to *The Times*, Lord Brabazon drew attention to the statement made by the Secretary of State for Air that in Transport Command the risk of a passenger meeting a fatal accident works out at 1/30th of 1 per cent. Lord Brabazon added the comment that "related to other forms of transport this means a fatal accident to one passenger at least in every three trains starting from our termini Nothing more disturbing and discouraging to the future of air transportation has ever come from an authoritative source."

What are the prospects of improving the safety of air transport? The answer depends on (a) the type of aircraft used, and (b) the nature of the airfields from which they operate. Unfortunately, the Secretary of State for Air has not provided us with any analysis of the causes of accidents in Transport Command, but it is well known that the great majority of aircraft accidents are due to either (i) engine cut at take off, (ii) fire in the air, or (iii) landing under conditions of bad visibility. The danger from each of these causes can be reduced or eliminated at a price; the question is whether the price of an adequate standard of safety will prevent air transportation from becoming a commercial proposition.

Let us consider the three main categories of accident in more detail. First of all there is the danger at take off. In this case there are two possibilities of reducing the risk of accident. Either airfields must be provided with runways four or five miles in length, which would enable an aeroplane to be safely landed again in the event of an engine cut during the take-off run or during the initial climb when airborne. Alternatively, aircraft must be designed with a sufficient number of engines having an adequate reserve power, so that in the event of one engine failing it would still be possible to get the machine safely into the air. The first alternative obviously is only a practical

possibility for long-distance services. The second alternative is applicable only to very large aircraft, and even then would be in opposition to the modern tendency in design, which is to restrict the number of power units because of installation difficulties, and to increase the output of each unit; this is a tendency which will be accentuated with the advent of internal-combustion turbines in place of reciprocating engines. It is worth noting that the problem of safety at take-off becomes progressively more difficult with every improvement of performance and increase of weight. In the early days of flying take-off was a relatively simple matter because of the small wing loading and consequently low stalling speed of the aircraft. In order to obtain higher speed and greater range, however, wing loading has been steadily increased, and this has necessitated a great increase of engine power at take-off and longer take-off runs.

Once an aircraft is in flight the most serious danger is the risk of fire. Failure of an engine in flight is not by itself a serious matter, at any rate in the case of aircraft having two or more engines. The fire risk will never be eliminated entirely, but it can be reduced by providing a sufficiently extensive and complex automatic fire extinguishing system. It would obviously be an easier matter to do this on a large aircraft than on a small one.

The third serious danger is bad visibility when landing. Wartime developments in radio and radar have provided the means by which this danger could be almost entirely eliminated. However, the cost and complexity of the equipment which would be required would restrict its application to only the largest aircraft.

To sum up, safety in air transport can be greatly improved, but it would appear that improvement is possible only by using large aircraft with very elaborate equipment operating from airfields of much greater size than are at present existing. We must of course emphasise that in the absence of any detailed official information all comment on aircraft accidents is largely a matter of conjecture. However, in the light of the above remarks, we can see no reason for expecting any appreciable improvement over the present accident rate for short distance air services operated by medium sized machines.

From the point of view of safety, therefore, it would appear that competition from air transport is not likely to have any serious effect on rail or sea traffic except on long distance services of over 1,000 miles. Will the average passenger in this country accept with equanimity the risk of one in 3,000 of being killed on short routes?

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French Passenger Services During the German Occupation

IT is now possible, with the aid of timetables and other matter sent here from France since the liberation of that country, to piece together a picture of passenger-train services during the German occupation. The well-known *Indicateur Châir*—counterpart of the British *Bradshaw*—continued to appear weekly until the issue of May 22, 1944, immediately before "D Day," and this issue notified widespread deceleration and cancellation of trains, due, no doubt, to damage to lines caused by the R.A.F. and by saboteurs. Permits, issued by the Germans, were needed by passengers travelling to all points along the Channel and Atlantic coasts, in the region which the enemy occupied entirely from the time of the invasion onwards; and only passengers provided with French identity cards issued and valid in 1943, also, were allowed in 1944 to cross the demarcation line between the Northern and Southern Zones, representing roughly the division between the original occupied and unoccupied France.

Fares had greatly increased; whereas in 1939, after the outbreak of war, first, second, and third class fares were 60c, 45c, and 30c per km. respectively, by 1942 they had risen to 75c, 54c, and 40c per km., and by 1944 to no less than 1 fr.19c, 84c, and 64c, with local surtaxes added, thus practically doubling the price of tickets. Not only so, but the reduction for return tickets—25 per cent. first class and 20 per cent. second and third class—had been abolished. Sleeping, restaurant, and buffet cars were still operating on a fairly extensive scale, and also *couchettes*, or lying-down night accommodation, but by 1944 the charges were very high; for first class berths the supplements ranged from a minimum of 335 fr. to 600 fr. for a distance over 800 miles, second class from 300 to 550 fr., and *couchettes* cost 115 fr. each up to 375 miles, and 175 fr. for any greater distance.

On the outbreak of war drastic cuts were made in the French train services. Over the principal main lines, the number of

fast trains was reduced to three in each direction daily, all of them day trains over routes up to 200 miles or so in length, and two by day and one by night on the longer journeys. In the earlier part of the German occupation, however, services tended to improve, especially in the areas under direct German control. The best services in France to the time of liberation thus have been those of the South-Western Region, between Paris, Bordeaux, and the Spanish frontier; they have had the additional advantage of being electrically-worked throughout.

In the latter part of 1939 there were three fast services only from Paris to Bordeaux, taking 8 hr. 10 min., 8 hr. 5 min., and 8 hr. 50 min. for the 360 miles; by the summer of 1942 these had increased to four, timed to reach Bordeaux in 8 hr. 3 min., 6 hr. 59 min., 8 hr. 22 min., and 8 hr. 56 min. The 6 hr. 59 min. *rapide*, with its overall average of 51.5 m.p.h., left Paris (Austerlitz) at 11 a.m.—no trains used the Quai d'Orsay terminus—and was a wartime version of the "Sud Express"; it called only at Les Aubrais, St. Pierre-des-Corps, Poitiers, and Angoulême; its schedule of 76 min. for the 69.6 miles from Les Aubrais to St. Pierre-des-Corps, an average of 55.0 m.p.h., was probably the fastest start-to-stop booking in Europe during the war years. As late as May, 1944, the timing of this train was still practically unchanged; the booked time to Bordeaux was 7 hr. 2 min., and to Hendaye, on the Spanish frontier, 505 miles, 10 hr. 37 min. A particularly interesting feature of this service right to "D Day" has been that it carried through sleeping cars in each direction between Berlin and Hendaye, primarily, of course, for German use, and the first ever to run through between Germany and the frontier of Spain. These cars worked between Berlin and Paris (Est) via Frankfurt and Metz, and between the Est and Austerlitz Stations in Paris by the Ceinture line.

On the steam-operated main lines, the printed timetables indicated little material change in frequency or speed during the German occupation. In the earlier period of the occupation, certain main lines suffered by crossing the line of demarcation between the occupied and non-occupied zones, which caused delays of 45 to 60 min. to all through trains, as, for example, at Chalon-sur-Saône on the South-Eastern Region main line from Paris to Lyons and Marseilles. Before the invasion, there were two day trains to Lyons, taking 8 hr. 8 min. and 8 hr. 19 min. for the 317 miles, and two from Lyons to Marseilles, a distance of 218 miles covered in 5 hr. 35 and 45 min., as well as two night expresses, one a sleeping car *rapide* booked to reach Marseilles, 535 miles, in 11 hr. 10 min., and the other allowed 12 hr. 18 min.

By 1942, in the part occupation period, the afternoon train to Lyons disappeared, and the morning train, despite a 50-min. wait at Chalon, reached Marseilles in 14 hr. 10 min., only 10 min. later than before, as the result of omitting a number of intermediate stops. The sleeping-car *rapide* was 3½ hr. slower, an hour of which was spent at Chalon, and the other sleeping-car train had been diverted to start from the Austerlitz Station at Paris, and to travel to Lyons by the South Western region route as far as Vierzon, another wartime innovation. By May, 1944, however, with the full German occupation, the 8 a.m. from Paris was booked to reach Marseilles in 13 hr. 55 min.—5 min. less than in 1939—and the sleeping-car *rapide* had been accelerated by 1½ hr. to take 13 hr. 10 min. A new evening train at 7.10 p.m. from Paris (Lyon) was taking 13 hr. 50 min., and Lyons had the benefit of a Grenoble service from Paris at 9.5 p.m.

The worst main-line services in France during the occupation were those of the Northern Region, which is not surprising, in view of the liability of these lines to air attack. By the early part of 1944, through services were no longer being run between Paris, Boulogne, and Calais; connections to and from Calais were by stopping train beyond Amiens, and from Calais to Paris the one service of the day took 9 hr. for the 184 miles. There was still a through train across Northern France between Calais and Metz via Lille, Hirson, and Mézières-Charleville, with through carriages to and from Munich.

The diagram reproduced on p. 191, prepared by Captain E. S. Russell, gives in diagrammatic form a complete summary of all the long-distance main-line and cross-country services operating in France in May, 1944, at the end of the German occupation, and shows the number of pairs of trains circulating daily (unless otherwise indicated) over each route. From this it will be seen that through trains were running between Paris and Brussels; Paris and Amsterdam; Paris and Berlin (via Liège and Cologne and twice nightly via Metz and Frankfurt); and Paris, Munich, and Vienna. There were connecting through services between

Karlsruhe and Mulhouse, and Mulhouse and Lyons; and through services were provided between Lyons and Bordeaux *via* Gannat, and Dijon and Bordeaux *via* Nevers, as in peacetime. One curious advertised service ran between Hendaye and Bar-le-Duc (junction for Metz on the Paris-Nancy main line), using the South-Western Region main line as far north as Les Aubrais (Orleans), and then cutting across the south of Paris *via* Pithiviers and Montreuil to Troyes and Bar-le-Duc. The time allowed was 16½ hr. Most of the international through facilities, though slightly varied in the matter of running times, remained practically unchanged throughout the occupation period. The foregoing particulars relate to schedules only, of course, and take no account of the frequent and prolonged interruption of services by air attack and sabotage, which must have become progressively worse as the close of the occupation period was approached.

....

The Argentine Railway Year

THE publication of the annual reports of the Buenos Ayres Great Southern and Buenos Ayres Western Railways enables the comparative results of working of all the British-owned Argentine companies to be compiled for the year ended June 30, 1944. Though traffics varied in the different zones, all the companies recorded increases in gross receipts, as shown in the table below:—

	1943-44	1942-43	Increase
Gross receipts	£	£	£
	('000 omitted)		
Buenos Ayres Great Southern	13,365	12,143	1,222
Central Argentine	12,159	10,305	1,854
Buenos Ayres & Pacific	8,264	7,521	743
Buenos Ayres Western	4,371	4,139	232
Entre Rios and Argentine North Eastern	2,659	2,333	326
Totals	£40,818	£36,441	£4,377

Operating expenses also advanced sharply—in some cases at a greater rate than the expansion in gross receipts:—

	1943-44	1942-43	Increase
Working expenses	£	£	£
	('000 omitted)		
Buenos Ayres Great Southern	11,471	9,795	1,676
Central Argentine	9,809	8,619	1,190
Buenos Ayres & Pacific	6,885	5,940	945
Buenos Ayres Western	3,840	3,654	186
Entre Rios and Argentine North Eastern	1,903	1,692	211
Totals	£33,908	£29,700	£4,208

The preceding statements show that although the companies, between them, earned £4,377,000 more gross receipts, almost the whole amount was swallowed in increased working expenses of £4,208,000. There were, however, notable differences in the results of the individual companies, as the following figures show:—

	1943-44	1942-43	+ or -
Net receipts	£	£	£
	('000 omitted)		
Buenos Ayres Great Southern	1,894	2,348	- 454
Central Argentine	2,350	1,686	+ 664
Buenos Ayres & Pacific	1,379	1,581	- 202
Buenos Ayres Western	531	485	+ 46
Entre Rios and Argentine North Eastern	756	641	+ 115
Totals	£6,910	£6,741	+ £169

The proportion of gross receipts which each company succeeded in retaining as net revenue seems to have borne direct relationship to the nearness of the lines to the firewood supplies of the country. Thus, the Central Argentine, Entre Rios and Argentine North Eastern, which are nearest to the forest lands, did better than the Buenos Ayres Great Southern, which is the farthest away. The Buenos Ayres & Pacific is the line which serves the most recently developed oilfield, at Mendoza, but apparently did not derive as much advantage from it by way of cheap fuel oil supplies as might have been expected.

The changing fortunes of the different companies is epitomised in the following percentage figures of working expenses to gross receipts during the past two years:—

	1943-44	1942-43
Rate of working	%	%
Buenos Ayres Great Southern	85.8	80.7
Central Argentine	80.7	83.6
Buenos Ayres & Pacific	83.3	79.0
Buenos Ayres Western	88.0	88.3
Entre Rios and Argentine North Eastern	71.6	72.5

Trying though the high fuel costs and rising working expenses generally undoubtedly were, they were still of secondary importance

compared with the problem of exchange losses. Here, also the experiences of the different companies varied. The exchange loss suffered by each company in relation to the net receipts was as follows:—

	Net receipts at par 1943-44	Exchange differences	Per cent. exchange loss to net receipts
	£	£	%
	('000 omitted)		
Buenos Ayres Great Southern	1,894	779	41
Central Argentine	2,350	847	36
Buenos Ayres & Pacific	1,379	648	47
Buenos Ayres Western	531	235	44
Entre Rios and Argentine North Eastern	756	226	30
Totals	£6,910	£2,735	40

The depreciation of the Argentine peso has long proved an insurmountable barrier to the payment of a return to the stockholder in Great Britain and the foregoing statement makes it sufficiently clear that a loss of as much as 40 per cent. in converting pesos into pounds could not be recouped by raising rates and charges for the services rendered by the railways in Argentina. Exchange losses also prevent the companies from building up adequate reserves to meet the constantly accumulating arrears of rolling-stock and permanent-way renewals. Rarely, even in prosperous years, have the sums which the companies were able to set aside for that purpose been adequate and the advent of road motor competition before the war and abnormally high operating costs during the war have long since prevented more than annual token contributions to the renewals reserves. At June 30, 1944, the credit balances in the renewals funds were:—

	Renewals fund balance
	30-6-1944
	£
Buenos Ayres Great Southern	7,415,641
Central Argentine	3,904,367
Buenos Ayres & Pacific	1,373,869
Buenos Ayres Western	2,857,983
Entre Rios and Argentine North Eastern	547,412
Total	£16,099,272

In the light of the total issued capital of about £244,000,000, and the fact that it is over 80 years since the lines first commenced to function, a renewals reserve of £16,000,000 clearly falls far short of prospective needs. Moreover, it is quite unlikely that railway supplies generally will be obtainable after the war at prices comparable with the original cost of the assets to be replaced. The expenditure on re-building permanent way and renewing rolling stock, which will have to be faced on a major scale if the lines are to continue to function satisfactorily, will demand special financial arrangements and will constitute one of the principal problems confronting Argentina when hostilities come to an end.

So far as immediate prospects are concerned, the trend of heavy traffics recorded since the commencement of the financial year on July 1 last is likely to be maintained. It is true that the wheat and linseed harvests have proved well below average and the latest government estimates do not expect the wheat out-turn to exceed 20 million quarters, comparing with 31 million last year and the linseed production is as low as 767,000 tons, against 1,573,000 tons. Nevertheless, the railways will have more traffic than they can carry for some time to come, because of the continued lack of imported fuel and the virtual cessation of road competition, added to which imports into the country are recovering and are already considerably ahead of last year's figures.

HEAVY TRAFFIC IN SALVADOR.—During the first half of 1944 railway passenger traffic in Salvador was the heaviest in the history of the country, totalling approximately 70 per cent. more movement in six months than during an entire pre-war year. The movement of freight by rail continued to average about 50 per cent. above pre-war figures. This was partly the result of the curtailment of motor lorry traffic, but was principally due to the increase in trade.

URGENT NEED FOR WASTE PAPER.—The Waste Paper Recovery Association points out that the need for waste paper increases as the war nears its climax. Each week, thousands of tons of waste paper leaves this country as component parts of supplies for the western and eastern fronts. As this paper cannot be salvaged, paper and cardboard used at home must be recovered for re-use. In addition, 15,000 tons of paper is needed for the manufacture of wallboard to repair houses damaged by enemy action.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Locomotive Cast-Steel Bar Frames

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In reading your January 19 issue I note that the South Australian 4-8-4s have cast-steel bar frames and that the article states "with the exception of boiler plates, roller bearings, and exhaust steam injector, all material . . . was produced in Australia."

Are we to understand from this that the bar frames were cast in Australia? If so Australian steel foundries are ahead of steel foundries in this country which have consistently refused to cast bar frames and forced loco. manufacturers to substitute slotted slabs.

Whatever the relative merits of plate and bar frames, there is no doubt of the swing towards bar frames which is taking place outside Europe. Indeed, demand is increasing for cast steel locomotive beds, of which American railwaymen speak highly.

If, therefore, British steel foundries persist in their refusal to cast bar frames, they will have an increasingly bad effect on our locomotive exports and at the same time provide an excellent talking point by foreign salesmen against British locomotive builders—"Why, they can't even cast their own frames . . ."

So, if Australia has cast these frames, it is really time our steel firms woke up.

Yours sincerely,
KENNETH CANTLIE

Colonial Minister's Visit to Jamaica

Jamaica Government Railway,
General Manager's Office,
Kingston. January 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The Secretary of State for the Colonies, the Right Honourable Oliver Stanley, M.C., M.P., has been visiting the British West Indian Colonies during the last week or so. Whilst on his visit to Jamaica, he travelled by rail from Montego Bay, the western terminus of the Jamaica Railway, to Spanish Town, the former capital of Jamaica—a distance of 100 miles. Spanish Town was the capital in the days of the Spanish occupation of the Island—that is, from the early 16th Century until 1655, and in those days it was called St. Jago de la Vega.

On this trip I used a railcar manufactured locally in our shops for my use on general inspection, a photograph and description of which was published in a former issue of *The Railway Gazette*.

I enclose a photograph of a group of some of the party who accompanied the Secretary of State. The photograph was taken at Montego Bay Station—I thought it might be of some interest

to you. It is of great interest to us, because it is the first Secretary of State for the Colonies who, during his term of office, has visited this Island and, of course, travelled on our railway.

Colonel Stanley expressed the opinion that the trip was most comfortable and admired the smooth riding qualities of the car.

Yours very truly,
H. R. FOX,
General Manager

The Railways of South London

Movements & Transportation,
HQ. LF & ML(G), C.M.F.
January 16, 1945

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—*The Railway Gazette* of November 3, 1944, arrived here a few days ago. I found this particular issue keeping up the usual high standard, especially in presenting another of your excellent full-page maps of railways in countries which have been outside our travelling area for some years, but may soon become familiar again—this time, Austria.

But my confidence was more than a little shaken by what appear, at this distance, to be a number of errors in the map of part of the Southern Railway's suburban network on page 427 of the same issue. Memory, after four years away from the U.K., may fail me—if so, I ask excuse—and *Bradshaw* is not to be had in Athens; but I strongly suspect your map is wrong in the following points:—

- (i) It is possible to run from Crystal Palace L.L. to Norwood Junction without reversing;
- (ii) There is a curve from the Sidcup line to the Sevenoaks main line at Hither Green;
- (iii) Brixton Station is situated west of the junction of the Herne Hill-Penge and Catford loop lines; and there is a Brixton Station on the Victoria-London Bridge (South London) line;
- (iv) Waterloo "Junction" lost its suffix some years ago.

To be really critical, I might detect two further deviations from what I remember to be fact:—

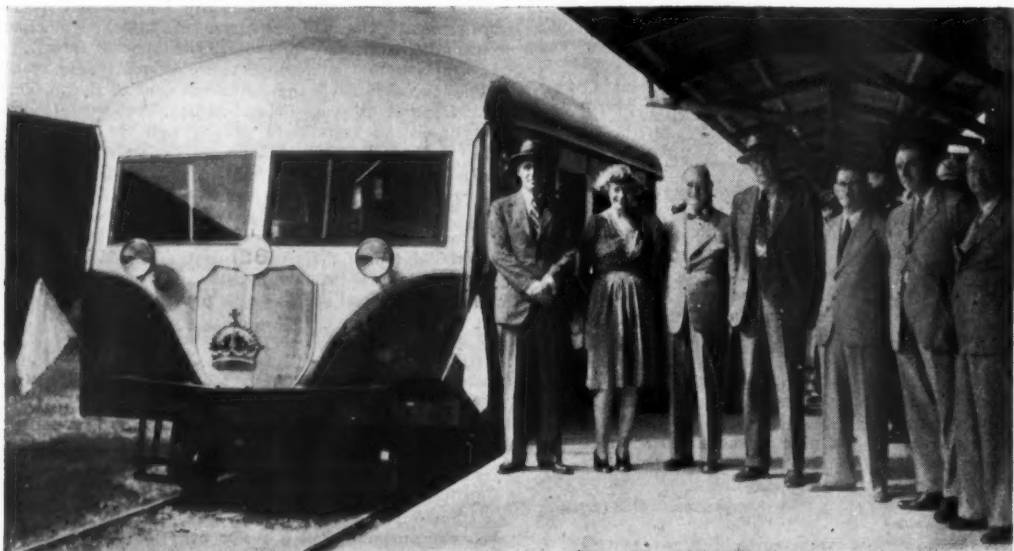
- (v) The Nunhead-Lewisham line runs *over* the London Bridge line near Brockley;
- (vi) The junction point at Loughboro' Junction is *south* of the station platforms, at any rate for trains to Denmark Hill.

Argument based on a narrow interpretation of the caption below the map will not, in my view, furnish a valid defence—except possibly in regard to (ii), which was a goods line only.

Or has the flying bomb changed Metropolitan geography more than we have been told?

Yours faithfully,
R. M. ROBBINS,
Major, R.E.

[We are pleased to learn that Major Robbins, who in peacetime is well known as a railway enthusiast, is still able to read



Photo, courtesy]

[*"The Daily Gleaner,"* Kingston, Jamaica
Visit of Colonel Oliver Stanley, M.C., M.P., to Montego Bay, Jamaica. Left to right:—Sir John Huggins, Governor of Jamaica; Lady Huggins; the Honourable F. M. Kerr-Jarrett, Custos of the Parish of Saint James; Colonel Stanley; Messrs. H. R. Fox, General Manager, Jamaica Government Railway; J. C. Atkinson, Traffic Manager; L. C. Gardner, Works Manager

The *Railway Gazette* in close detail, in common with a large number of officers in all parts of the world who are serving in Movements & Transportation, and whose letters reach us from time to time.

We fear, however, that Major Robbins is mistaken in most of his contentions, but not because the flying bomb—widespread though was the damage it caused—has changed the geography of the Southern Railway in the matters which he raises. The map which he criticises, which was checked officially by the Southern Railway for the purpose for which it was intended, was correctly described as a "sketch map of the passenger lines involved in the Cow Lane Bridge incident, and the resultant alternative services." It contained an error (as Major Robbins points out—v) in showing the Nunhead-Lewisham line passing under the London Bridge-Brockley line, whereas it should be over.

Dealing first with station junctions, Brixton Station is not situated west of the junction of the Herne Hill-Penge and the Catford loop lines; the platforms are east of the point of bifurcation.

The station on the Victoria-London Bridge (South London) line of the former L.B.S.C.R. is called East Brixton.

The junction point at Loughboro' Junction is north of the station as we showed; there are platforms only on the Herne Hill line, and trains for Denmark Hill diverge to the north of these platforms.

It is possible to run from Crystal Palace Low Level to Norwood Junction. Our sketch map made no attempt to show the maze of junction lines in the neighbourhood of Norwood and Selhurst.

There is no curve used regularly by passenger trains from the Sidcup line to the Sevenoaks main line at Hither Green. Such a route would be practicable with the existing lines, but it is difficult to conceive how it would affect workings in which Cow Lane Bridge might be involved.

Many other lines (e.g., Queens Road, Peckham, to New Cross Gate) were omitted because they are not passenger lines and were irrelevant to the Cow Lane incident.—ED. R.G.]

Railway Superannuated Staff

19, White Street,
Derby. February 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I should be obliged if you, or any of your readers, could tell me whether they know if any of the railway companies' boards of directors have approached the Government with a view to their emulating the example set by the banks, and other large commercial undertakings, and giving to their superannuated staff the same amount of war bonus as they give to their present staff.

If not, I would like to suggest some member of Parliament ask the Minister of War Transport what the cost would be, assuming that half the amount would be paid back in the form of income tax.

While it cannot be denied that a number of ex-railway employees are men of opulence, it cannot be concealed that among the thousands who have joined the superannuation funds appertaining to the various companies now embodied in the four main-line companies, there are many who through sickness and through the high cost of living caused by the war, and even by the last war, are reduced to a state of bare existence.

Yours faithfully,

FRED. RATFORD

An American's Tribute to British Railwaymen

Sloane Avenue Mansions,
Sloane Avenue,
Chelsea, S.W.3. February 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As an American citizen, and as a railway traveller in the recent terrible weather, may I contribute my meed of praise to the stout-hearted train crews who brought us safely through and to the managements who must have planned the many alternatives in timing and routes which became necessary every few minutes as the blizzards swept so many different parts of this island?

The recent weather recalls to my mind a mid-winter journey I took many years ago from my home in Greensboro, N. Carolina, to New York in a "flyer." The "limited" trains in those days ran under penalty to be on time—for every hour late the company paid every passenger a dollar—unless the delay was caused by blizzard or hurricane. On this particular journey we ran into the worst blizzard I can ever recall as we entered the last division before New York. The train lost eight hours in that wild weather. No eight dollars for each passenger; but the passengers were so grateful to the engineer, fireman, and

train crew that they made a whip round for the crew and collected, if my memory serves me, \$500 in recognition of the care and safety with which the crew had brought them through.

Just as the stout-heartedness of those American railroaders was recognised, I, too, would like to go on record with the admiration I feel for the heroism of British railway crews during the recent appalling weather. Their devotion to duty and to the travelling public cannot be praised too highly.

Yours faithfully,

MELVILLE P. TROY

Brake-Snatch

26A, St. James Street,
Newport, I.O.W. January 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I wonder if you can furnish any explanation of that uncomfortable phenomenon to which many railway coaches seem liable in these days, snatching brakes? Although not unknown in peacetime, it seems to me that it is much more widespread now, in these times of necessarily reduced maintenance. Most of my recent journeys on the mainland have been made in coaches affected in this way, and this letter was prompted by a trip from Waterloo on one of the Portsmouth electrics, which was a particularly chronic case. I notice that steam Westinghouse-fitted stock, on the other hand, is less affected than Vacuum-brake stock. I recently travelled on the G.W.R. Birmingham line, in one of that company's short-wheelbase coaches of the late 'twenties, when the vicious side-kick of the vehicle was not only highly uncomfortable, but, I should say, exceedingly dangerous, especially when taking big junctions at any speed.

High speed seems to be the governing factor—I notice that many coaches begin to wobble only at speeds in excess of about 45 m.p.h. and at speeds above 60 m.p.h. or so the wobble may disappear, to return, however, as speed drops.

The cause seems to me to have two possible explanations—loose brake rigging which normally would be promptly adjusted, and leaking connections, resulting in brakes being half-applied while the vehicle is running. I should be interested to have your comments, however, on this very disturbing affection.

Yours faithfully,

R. T. COXON

Unknown People and their Parliament

Thaxted,
Essex. February 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—By way of concluding a correspondence that has lasted over long, may I state that I willingly concede to "Historicus" any satisfaction he can derive from the relationships which existed between my grandfather and great-grandfather (and, of course, other stockholders) and the Governments of their time.

Turning to current history, "Historicus," I think, was misled by a printer's error in your issue of January 26. I suggested that the railways were permitted to invest in companies "of which the incomes, for the greater part, are provided at the expense of railway traffics." Unfortunately "expense" was printed as "expenses." What was in my mind was that of one hundred persons travelling by road from, let us say, London to Brighton, at least sixty would have travelled by train if the road service had not existed. "Historicus" asks for the figures on which this assumption is based. I have none. I can no more prove that they would have travelled by train than "Historicus" can prove that they would have walked there.

But after all why should we wander about the outskirts of the question, when, in fact, we are really concerned with the centre of it? When the Railways Act was introduced in the House of Commons, the Minister stated: "Every section of the community desires to give the proprietors a reasonable living wage for their investment," and further in the same speech he said: "I believe if this Bill is adopted, that, within a very measurable time, we can look forward to immense prosperity in the railway industry and to a reduction of charges to users." Why did the Minister think it necessary, first to reassure the stockholders as to the intentions of Parliament, and subsequently to reassure Parliament as to the return the stockholder would receive? There is only one answer—because he appreciated that apart from the circumstances he envisaged, the proposed arrangement would be utterly inequitable.

That the House in passing the Bill entirely shared the Minister's anticipations and intention is sufficiently proved by the comment of Mr. Clynes, who was speaking for the Opposition: "These provisions," he said, "contain at least two features. One is an assured return to the capitalist, to the investor, to the ordinary shareholder, whatever may be the fate of others, and the other is an inevitable tendency to exploitation in order to secure the rates that the Act will provide."

There was, in short, an understanding between Parliament

and the proprietors of the railways. The railways were to maintain themselves in the highest state of efficiency, and were to be deprived of any large reward for so doing, but as a *quid pro quo* they were to receive what was virtually a guaranteed minimum wage. Thereafter the Railways kept themselves in the highest state of efficiency with the knowledge that the State would appropriate any large profits they might earn. Unfortunately, however, the guaranteed minimum wage has never been forthcoming. It is this inequity that Parliament must adjust when the final settlement with the railways comes up for discussion. It must adjust it not merely as a duty to railway stockholders, but even more as a duty to its own reputation.

Yours very truly,

ASHLEY BROWN

L.N.E.R. Standard First Class Coaches

Peterhouse,

Cambridge, February 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your correspondent, Colonel K. Cantlie, suggests that anti-telescoping posts and beams should be fitted to new

L.N.E.R. coaches. In the case of this company's corridor stock this is scarcely necessary, as the vehicles are fitted with central couplers and Pullman-type vestibules. All buffing loads are transmitted through the vestibules, and the ends of the wooden body are therefore heavily reinforced to withstand these forces.

Cases of telescoping are almost unknown with this type of stock; the central coupler prevents over-riding of the underframes, which is normally associated with telescoping, whilst the ends of the bodies can withstand even the abnormal forces set up in a collision, provided that these are transmitted through the springs of the vestibules in the normal manner.

The vestibules themselves have a heavy steel faceplate, and are very short; the amount of flexible rubber covering is small. Some form of flexible covering is necessary to allow for the movement of the faceplates on their springs.

Anti-telescoping devices would be of some use in non-corridor vehicles, although even in the case of these, modern shock-absorbing buffers with large faces largely eliminate the risk of telescoping, with its over-riding of frames.

Yours faithfully,

ARTHUR F. COOK

Publications Received

Counterbalance Tests of Locomotives for High Speed Service. Published by the Office of the Mechanical Engineer—Mechanical Division, and the Research Engineer—Engineering Division, Association of American Railroads. 9 in. x 6 in. 313 pp. + folding plates. Illustrated. £1 ls.—This is a report of an important and comprehensive series of tests carried out during the last four years by the Association of American Railroads, under the direction of Mr. G. M. Magee, Research Engineer (Engineering Division) and Mr. W. I. Cantley, Mechanical Engineer (Mechanical Division). The book is more than a report; it is a textbook on the balancing of locomotives, with an accurate survey of methods of balancing during more than 100 years. Though American practice naturally receives the greatest consideration, it is clear that the compiler of the report is aware of the work done on the subject in other countries. Reference is made to papers by Mr. E. S. Cox, and Messrs. Colam and Watson, which were presented at a joint meeting of the Institutions of Civil and Mechanical Engineers in 1942.

Briefly, the tests refer to three locomotives: a 4-8-2 (No. 2400) of the Illinois Central Railroad; a 4-6-2 (No. 729) of the Minneapolis, St. Paul & Sault Ste. Marie Railway (Soo Line); and a 4-6-4 (No. 3457) of the Atchison, Topeka & Santa Fe Railway. Various amounts of compensation for the reciprocating weights (from 50 per cent. to zero) were tried, with a view to post-war accelerations, and also to study the effect on track of existing types. The test runs were made at near 100 m.p.h. as could be obtained; other test speeds were 5 m.p.h., and "diameter speed," that is, the same number of miles per hour as inches in the driving-wheel diameter.

One of the most interesting sections of each set of test records is that referring to the recording instruments. The accelerations of the locomotive frame in the vertical, lateral, and longitudinal directions were measured with electro-magnetic accelerometers; stresses in the main driving-wheel pedestals (horncheeks), both front and back, were measured with electro-magnetic strain gauges; and fluctuations of drawbar-pull between locomotive and tender also were recorded. The relative riding condition was assessed by observers in the cab. Special roller-bearing "tie plates" were used to compare the lateral forces exerted on the track by the test

locomotive; the vertical forces were estimated by measuring the longitudinal bending stresses in the rail.

The whole series of tests is summarised in a concluding section, which gives special attention to the correct procedure to follow to secure the best counterbalancing. Guidance also is given on the practical limits of reciprocating unbalance, in pounds per ton, as governed by the disturbing effects on the locomotive. It is interesting to note that the trailing bogies or trucks, as well as the drawgear between engine and tender, exert great influence on the riding qualities, and on the vertical and lateral accelerations of the locomotive at high speed.

Counterbalancing was found to have little effect on the lateral forces exerted on the track; but vertical forces decreased in proportion to the reciprocating compensation, that is, as the resulting overbalance was reduced. The tests also showed the need for greater refinement in estimating the revolving unbalance in driving wheels than has been customary. The use of light-weight reciprocating parts, either in the building of new locomotives or in the rebuilding of existing types, it is contended, should enable designers to keep well within the recommended limits of 8 lb. per ton reciprocating unbalance and 200 lb. per wheel overbalance. By observance of these conditions it is possible to provide a counterbalance which will have favourable effects, both on the locomotive and on the track, so far as disturbing forces due to reciprocating weight and dynamic augment are concerned, up to speeds equal to $1\frac{1}{2}$ times the "diameter speed."

The book is well planned, and contains many illustrations, with graphs of similar tests taking the place of many pages of tabular matter. There is no index, but the various series of tests are listed in the table of contents. This book should prove of great value to those concerned with the balancing of locomotives.

A Constructional Engineer's Compendium. The Appleby-Frodingham Steel Co. Ltd., Scunthorpe, Lincs. 905 pp. $7\frac{1}{2}$ in. x $4\frac{1}{2}$ in. Fully illustrated with line drawings. Price 21s.—This beautifully-produced volume is a much enlarged edition of previous handbooks for structural engineers produced by the same firm. The technical data had been assembled in 1939, but due to war conditions it has not been thought advisable to publish until the present time, when the concentration of

attention on post-war planning, involving the erection of steel structures of all kinds, has provided the necessary justification. Following a brief description of the extensive Appleby-Frodingham iron and steel plant, with details of tolerances, shearing margins, and other conditions attaching to rolled-steel plates and sections, a list of rolled sections is given. The next section of the book is devoted to stanchions and struts, with safe loads and properties of a great variety of both, ranging from simple angles, channels, and joists to compound assemblies of various kinds. A further section of the book deals similarly with rolled steel beams, compound, gantry, and plate girders, and roof trusses, and includes web buckling tables, designs for end connections, and other helpful data. After this there are a section covering the electrical welding of structural steelwork, with notes on electrodes and tests; a section on sheet piling, including the design of retaining walls, coffer-dams, and various other forms of construction; a section on reinforced concrete and its uses; notes on timber and its physical properties; and miscellaneous information, comprising standard bridge loading, safe pressures for floors, masonry, and foundations, data for beams and continuous beams under various conditions of loading, data on eccentrically-loaded columns, and the properties of various sections. The book concludes with a number of mathematical and other tables likely to be of value to the structural engineer. In its layout and the clarity of type and drawings, the book is a model of its kind, on which the compilers are to be congratulated; with its mass of general information, in addition to its statistical tables, this is the type of work that every structural engineer needs to have constantly at his elbow for purposes of reference.

British-Built Austerity 2-10-0 Locomotive. London: *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1. $11\frac{1}{2}$ in. x $8\frac{1}{2}$ in. 8 pp. + large folding plate. Paper cover. Price 2s.—The 2-10-0 austerity design of locomotive, built for the Ministry of Supply by the North British Locomotive Co. Ltd., was fully described and illustrated in *The Railway Gazette* of December 15, 1944. That issue is now out of print, and this brochure is a reprint of the article. Sectional elevations and plan are included on a large folding plate. The companion booklet describing the British-Built 2-8-0 austerity locomotive has already passed through four editions as large as the paper situation permits.

The Scrap Heap

Under the heading of "Luxuries for Third-Class Passengers," the *Morning Post* for December, 1874, said: "We are informed that the Midland Railway Company intends to have warming foot-pans put into all third-class carriages, and to have the seats cushioned."

Through an oversight we omitted to acknowledge last week that we were indebted to *The Illustrated London News* of August 4, 1877, for the two pictures we reproduced on page 155, showing interior views of a German ambulance train for the use of the Russian Army in the Bulgarian campaign of 1877.

A WORD FOR OUR RAILWAYS

Your cartoon showing the plight of our train services was amusing and original, but we railwaymen would have appreciated Giles more if he had depicted a truer picture of the circumstances leading up to lost and missing trains! He might have included the snow covering the rails at places, also a few points and crossings frozen and blocked with snowdrifts, and signals doing the opposite or refusing to answer the lever movements in the cabins.

Perhaps he hasn't seen an engine driver, well over 60, with sweat running off his nose, struggling with an engine well overdue for repairs, with inferior coal in the tender, trying to raise sufficient steam to proceed "up the bank." Does he realise our best and most reliable engines are doing other jobs?

Perhaps he would be surprised to hear that I have in front of me at the moment a report from head office asking for full explanation of half a minute delay at my station, shown on the guard's journal as "passengers alighting." I've got to find a better answer than the guard's to satisfy the Train Running Section, and I can't blame the weather for this one.—Letter in *The Sunday Express* from F. Prevett (Stationmaster, S.R.), Sanderstead & Riddlesdown.

SCOTTISH OR ENGLISH

Confusion sometimes arises because of the different meanings in Scotland and England respectively of the same words. For instance, "presently" which means "soon" in England, means "immediately" in Scotland, and "thereby" in Scotland may be equivalent to "thereabouts" in England.

Among differences in phraseology may be mentioned "on timeous notice being given to the guard at the preceding stopping station" which regularly appeared in the time-tables of the former Highland Railway; the keyword of this would have been "timely" in England. North of the Border a superintendent "repones" a train in his timetable when his southern colleague would restore or reinstate it, while the locomotive running people talk about the extra "consumpt" of coal due to the change. Also, instead of "the 5th instant" in a letter, a Scotsman will sometimes write "the 5th current, or curt", and he often uses "narrate" instead of "tell." The English legal term "plaintiff" becomes "pursuer" in Scotland, and "defendant" becomes "defender." A land agent in Scotland is a "factor" and the notices he issues are "missives." Some of these usages have arisen through the close connection between Scots Law and Roman Law.

FLYING ACCIDENTS

The Secretary of State for Air as reported recently tells us that in Transport Command the risk of a passenger meeting a fatal accident works out at $\frac{1}{100}$ of 1 per cent. Related to other forms of transport this means a fatal accident to one passenger at least in every three trains starting from their termini. What the "bag" would be in London transport per day I tremble to contemplate. Nothing more disturbing and discouraging to the future of air transportation has ever come from an authoritative source.—Lord Brabazon of Tara in a letter in *The Times*.

Railwaymen have raised £407,539 for the Red Cross Penny-a-Week Fund.



[From *The Sunday Express*]

"If they keep on bombing Germany, their railways will soon be as bad as ours, won't they, Sir?"

100 YEARS AGO

[From *THE RAILWAY TIMES*, Feb. 22, 1845]

MANCHESTER AND LEEDS RAILWAY.

—SUPERINTENDENT OF LOCOMOTIVES.—WANTED, a Person, fully experienced in the construction and management of Locomotive Engines, salary, £240 per annum. None but thorough mechanics, fully acquainted with their business, and capable of taking charge of the general fitting department, at the Company's new workshops, need apply. — Applications, with references, to be sent to the Secretary, on or before the 1st of March next.

By order.

JOHN JELLCORSE, Secretary.

Manchester, February 18, 1845.

TO MR. HERAPATH.—Sir,—In your journal of February 18th, you honour the West Yorkshire Company and its promoters with a further portion of "evil speaking, &c." (I leave your readers to conclude the sentence.)

You appear in a double capacity, both directly as Mr. Herapath, and through your editor; thus taking shelter under the editorial term *we*. I shall, however, draw no petty distinctions but continue to address you directly as before.

Your "guesses at truth," are quite as far from the mark as your fabrications or gross perversions. Instead of clearing yourself from the charges I had brought against you, and which as you have not thought proper to answer them, I take for granted you admit to be based on fact, you make a random shot at the writer of my previous letter. You fall upon your assumed author, who in reality has nothing to do with the matter, and, as usual, bestow upon him a portion of that personal abuse in which you excel. It is clear that you have, as correspondents, kindred spirits who can rake together for you local slanders or innuendoes to serve your purpose.

These personalities, however, shall not detain me from my object, which is to expose the hollowiness and fallacy of your pretensions, as an impartial journalist. The only railway journal not the property of an engineer, or under the control of a Company!

You observe, "the decision of the Board of Trade, has you tried, put an extinguisher on the hopes and designs of the West Yorkshire schemes." Again, "the Board of Trade has done a real service to the West Yorkshire, as well as to the district, in rejecting it, and all the honest shareholders in the concern should join in a memorial of thanks to the Board of Trade for saving them from further loss."

Before these remarks went to press, you had notice, or might have had notice, of the meeting of shareholders in the West Yorkshire, held at Halifax, on Wednesday, the 5th of February, when 1,000 or 1,100 persons were present, and resolutions passed unanimously, expressive of a firm determination to persevere in the application to Parliament for their Act, and concluding with a vote of *entire confidence* in the Committee of Management.

After all you have said and written against the Managing Committee of the West Yorkshire Company, it is extraordinary that amongst 1,000 or 1,100 shareholders, you could persuade none to get up in that assembly and repeat your slanderous charges. This fact convinces me, that low as was the estimate I had formed of your influence, it is still too high, and your conduct has so far degraded you in public estimation, as to render further notice of your attacks almost superfluous.

Were further evidence wanting to expose your unfairness as a journalist, and to prove that you were the tool of a certain Company, I might refer your readers to the fact that you had omitted in your last journal, all notice of this large and influential meeting of shareholders in the West Yorkshire, or the resolutions then passed.

If you will tear the mask from your journal, and call it by its proper name, "The organ of the Manchester and Leeds Company," with Mr. Herapath and a certain "Lawless" Captain, as joint editors, you will spare me further trouble, as.

VERITAS.

Halifax, February 11th.

* * The above letter has been sent to the Editor of "Herapath's Journal," as an advertisement, for which he makes the following modest demand: "The publisher's compliments to Mr. Byles, on the receipt of Ten Guinea the advertisement will be inserted."

[The above is not necessarily a warning to our more persistent correspondents.—ED. R.G.]

TAILPIECE

(Reserved nursery compartments would be welcome on long-distance trains to give nursing mothers comparative privacy)

In post-war days (how large they loom),
The railways will expect a boom;
Their plans are shaping many schemes
That may exceed man's cherished dreams.

Whatever they may have in store,
"King" baby must be to the fore,
And nursing on long-distance trains.
Is quite a tax on mothers' brains.

So railways please come to their aid,
And bear in mind when plans are made,
To make provision that some cars
Shall be reserved for young "Mama's."

W. E. N.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Union Airways

Bookings for all routes operated by the South African Airways in the Union remain heavy, and passengers are fully prepared to pay the few extra pounds to avoid travelling by train. What they have to pay in excess of rail fares they save in time and convenience. Throughout December, the Durban-Rand daily service operated to an average of 75.8 per cent. of its maximum carrying capacity. On several occasions in recent weeks the corresponding figure for the Rand-Kimberley-Cape Town service was 100 per cent., and, during December, 87.8 per cent. It has been found necessary to introduce an extra machine on the Rand-Cape Town route, and within an hour of the fact being known all the seats were booked up.

It may be recalled that the South African Airways are operated by the Railways & Harbours Administration. The services were suspended on the outbreak of war, but were resumed on December 1, 1944, in accordance with the announcement of the Minister of Transport recorded in *The Railway Gazette* of November 24 last, page 513.

Trainee Scheme

As intimated in our issue of December 1 (page 545), the Railways Administration has introduced a new grade for beginners described as the Trainee Scheme. Henceforth, junior railway workers will no longer be recruited to form a reservoir from which vacancies in graded posts can be filled. The new grade carries the same wage scale that applies to learners, which is superior to the wage scale for the junior railway worker. The category of junior railworker is being retained for appointments outside the trainee scheme.

Under this scheme, youths will be appointed to the railway service on a competitive and selective basis. They will receive initial training to fit them for employment as learners or juniors for specific parent grades while employed as general assistants at depots or stations. Seven training officers are to be appointed to take charge of the training at various centres.

This preliminary training will help to determine the type of railway work to which an individual trainee should be assigned. It is the intention to transfer the trainee to the learner or junior grade 12 months from the date of appointment to the service and before he reaches the age of 21.

UNITED STATES

Rock Island Schemes

Two costly improvement schemes are about to be carried out by the Chicago, Rock Island & Pacific Railway. The first, already authorised by the Interstate Commerce Commission, is a complete re-routing of its present main line from Chicago to Kansas City for 18 miles from a point near Paris to Centerville, both in Iowa. As compared with the inconvenient present line, the deviation will reduce the distance by 3.86 miles, the ruling gradient from 1 in 100 to 1 in 200, the sharpest curvature from 22 ch. to 87 ch. radius, the total curvature from 813 deg. to 91 deg., and the total rise and fall from 635 ft. to 392 ft. The new single-track line, which is to be laid with 112-lb. rails, will thus be suitable for high

speed throughout. The estimated cost is \$2,405,000.

The second project is the installation of automatic block signals over 486 miles of line between Albright, a suburb of Omaha, and Limon, Colorado, 90 miles short of Denver, at a cost of \$797,000, to expedite the movement of traffic between Chicago, Omaha, and Kansas City, in the Middle West, and Denver and Colorado Springs, in the west, where transfer is made of traffic to and from the Pacific ports. Limon is the junction of the Denver and Colorado Springs lines. This route is one of several which has assumed great importance in connection with the movement to the Pacific of munitions required for the war with Japan, and the installation of the signalling concerned will begin as soon as materials and labour are available.

First Train over Gilbertsville Dam

On November 2, 1944, the Illinois Central System sent its first train along the 8,650-ft. long dam which has been built at Gilbertsville, Kentucky, as part of the Tennessee Valley Authority's scheme. The dam is 2½ miles north of Paducah, where the Tennessee and Ohio Rivers join. The Illinois Central main line from Louisville to Memphis crossed the Tennessee by a bridge which now will be submerged. Construction of the deviation, which carries the railway along the dam, was begun in the summer of 1939, and its cost was borne by the T.V.A., which has been responsible also for the protection and maintenance of the bridge until completion of the new line. Mr. J. L. Beven, President of the Illinois Central, rode on the first train to take the new route.

BRAZIL

Brazil-Paraguay Rail Link

The convention signed between Brazil and Paraguay, relating to the construction of a railway between Caballero and Villa Concepcion (to which reference was made, with a sketch map, in *The Railway Gazette* of September 15, 1944), provides that the Paraguayan Government shall grant the North Western Railway of Brazil the concession for construction and exploitation of a line, in continuation of the Campo Grande-Ponta Porã branch line (open, at present, as far as Maracaju only) of the N.W.R., between the two above-mentioned towns.

The concession will be granted free of any obligation of reversion, but after a period of five years from the date of inauguration of the railway the Paraguayan Government will have the right to expropriate it. Such expropriation, however, will be preceded by a governmental act and indemnisation based on a value agreed by a mixed commission of Brazilian and Paraguayan representatives. It is laid down that if, after such expropriation, the Government of Paraguay shall decide to sell or rent the railway to any foreign party, preference will be given to the N.W.R., if conditions are equal.

Customs and Tax Exemptions

The Brazilian Government will provide the N.W.R. with the funds necessary for the construction and equipment of the railway. In turn, the Government of Paraguay will grant to the N.W.R., as concessionaire of the railway, and during a period of thirty years, the following advantages: (1) exemption from all customs'

duties on material, machinery, rolling stock and other equipment imported for the construction and exploitation of the railway, also on luggage of any technical or administrative staff necessary; (2) exemption from all present or future local taxation which, in other circumstances, the railway would incur. Exemption from customs' duties will not apply, however, to imported items of equipment when similar articles are produced inside Paraguay and in sufficient quantities to meet requirements.

Under the terms of the concession, the Paraguayan Government will give the N.W.R. the right to expropriate, as of public utility, and in accordance with Paraguayan legislation, all private land and buildings necessary for the construction and exploitation of the railway. Furthermore, the N.W.R. will have the right to use freely any timber and stone extracted from the forests and quarries, respectively, belonging to the State, and in the neighbourhood of the line under construction. The survey and alignment of the new line will be made by the N.W.R., subject to approval of the Government of Paraguay. Rates, fares, and transport regulations also will be organised by the railway in conjunction with the Paraguayan Government.

Transfer of Concession

By previous agreement with the Government of Paraguay, the N.W.R. will be allowed to transfer the present concession to any Brazilian or Paraguayan limited-liability company which is at present formed or which may be floated in the future, either for the construction and exploitation of the railway, or for the exploitation alone, if the transfer takes place after construction is completed.

The Paraguayan Government will incorporate the existing line between Villa Concepcion and Horqueta, with all installations and equipment, into the railway concerned and the N.W.R. will pay to the Government of Paraguay the just value as agreed by a mixed commission which will be formed for the purpose.

Standardisation of Railway Tools

As a preliminary to the standardisation of the various tools used in the maintenance of permanent way and railway workshops a meeting was recently held at the Brazilian Technical Association of São Paulo. In addition to the Section of Industrial Production, subordinate to the co-ordinating body of Economic Mobilisation, the São Paulo, Paulista, Mogyana, Sorocabana, and Araraquarense Railways, as well as the National Institute of Technology, the Municipality of São Paulo, the Companhia Mecânica e Importadora, the Companhia Mazzoni, and the Fabrica de Artefactos de Aço Tupi, were represented.

Some months already had been spent in the gathering of data in view of the different conditions prevailing on the various railways. With the help of the Brazilian Association of Technical Norms and the Institute of Technical Research, an agreement was reached in respect of the standards applicable to picks, beater picks, spades, adzes and forks. The meeting adopted the designs of such tools or implements used on the Paulista Railway, and in respect of weight the following standards were established:—

	Weight kilogrammes	Rockwell "C" temper scale
Picks	3.2	45 to 52
Beater picks	3.4	45 to 52
Spades	1.8	40 to 55
Adzes	2.4	40 to 47
Forks	2.7	35 to 45

The immediate consequence of the above agreement is that tool manufacturers will be able to apply mass-production processes.

Railway Progress and Prospects in New Zealand

Recent traffic increases in relation to the Government Railways' future potential capacity

By George G. Stewart

THE record gross revenue of £15,325,306 attained by the New Zealand Government Railways for the year ended March 31, 1944, shows an increase of nearly 64 per cent. over the figure for the financial period 1938-39 (£9,345,387). This is the more notable when it is remembered that, in pursuance of a policy aimed at preventing inflation, no increases in rates or fares have been permitted during the war period, whereas in the 20 years previously (particularly in 1926, when a new tariff was enforced) there had been numerous and considerable increases in most of the Government Railways' basic scales of charges.

A great part of the increase can be attributed (as was a corresponding rise in the last war) to demands on the system arising directly out of the war. Nevertheless, there have been contributory factors, a summary of which is given below:—

(1) A substantial increase in the Dominion's secondary industries was noted from 1935 onward.

(2) Government control of competing road services, to prevent wasteful competition, has been increased during the same period.

(3) "Truck-rating" to certain districts where sea competition existed has closed down shipping services and added much traffic to the rail (the "truck-rates" allow senders to group their goods through an appointed agent and provide much cheaper transport than when classified tariff rates a ton are charged; with "truck-rated" commodities, the Department takes "all care, but no responsibility").

(4) A purchasing policy has been pursued in relation to road passenger services connecting with railway terminals or giving cross-country connections at way-side stations. This sometimes has included road goods services. It has incurred, of course, large capital expenditure.

(5) Improvements in train comfort.

Five years ago it was shown that, over a long period, while the route-miles of track increased in a ratio of $1\frac{1}{2}$ to 1, train-miles increased in the ratio of $3\frac{1}{2}$ to 1. Present-day figures show a still higher increase in the density of traffic as compared with the mileage of track available to carry it.

The present position calls for a great and comprehensive expansion of railway facilities if the State's capital investment (exceeding £70 million) is to be preserved.

The Question of Gauge

It seems unlikely that any Government or administrator in the immediate future will be found to undertake or recommend the huge and costly task of increasing the 3,000-odd miles of 3-ft. 6-in. gauge to the standard of 4 ft. 8½ in. It would require the impetus of some high-ranking commission of railway transport authorities and experts from overseas to start such a movement. Yet, if production and progress in the post-war world cause a substantial redistribution of population from crowded over-industrialised areas to countries where primary production can be augmented easily on a large and profitable scale, New Zealand can look for a major increase of population by immigra-

tion and a quick rise in the demands on its internal transport equipment. The present railway suit is already strained at the seams in every direction—at some points dangerously so. A new suit, man-size, would probably be less costly in the long run than a perpetual patching and mending of the old. Now, at least, is a time when planning on the grand scale is in order.

New Zealand made the initial mistake of standardising her railways to the 3-ft. 6-in. gauge by a Government policy laid down in 1870. After three-quarters of a century, arguments which seemed at the time to justify the decision no longer hold true.

If a change were to be made, the major engineering problem would probably be the enlargement of tunnels, of which New Zealand has more than her share. As, however, some of these may soon need major repairs in any case (as has already been found with certain recently-completed tunnels), the problem would be by no means insuperable. Modern methods doubtless would often substitute valleys for tunnels, as has been done in the notable Hawkeswood cutting on the newly-constructed portion of the South Island main trunk line.

New Works Required

Below are listed two urgently-required works:—

(1) *Frankton Junction and Hamilton.* The making of these two stations, which are within a mile of each other, into one large modern railway installation has become a national necessity. Frankton Junction handles all traffic for and from the Taneatua (Tauranga), Thames, Rotorua and Cambridge branches, to and from all other parts of the North Island main line and branches. Hamilton is the second largest inland town in the North Island. The present conditions for passengers having to change over at Frankton Junction, and the access between the town and station, are bad. Improvements have been held up until the exact form of the drastic remodelling required has been agreed.

Already duplication of the 86-mile stretch from Auckland southward to Frankton Junction is completed and in operation (except for a swamp section of several miles nearly midway between those points in the vicinity of Mercer).

(2) *Paeroa-Pokeno Line.*—Associated with the need for improvement at Frankton Junction is that for completion of the Paeroa-Pokeno line to give direct access, across the Hawiaki plains, between other parts of the Auckland province and the fertile territory of the Bay of Islands district. Some construction has been carried out, but rails have not yet been laid. Pokeno is 40 miles south of Auckland on the North Island main trunk line. Frankton Junction lies 45 miles further south. Paeroa is 40 miles east of Pokeno and 20 miles south of Thames (at the head of the Thames inlet of the Hawiaki Gulf); it is the junction of the Taneatua-Tauranga-Paeroa line with the Thames-Frankton branch of the North Island main trunk line, and is 44 miles north-east of Frankton Junction.

The Paeroa-Pokeno line will save over forty miles for all transport by rail

between points north of Pokeno (including Auckland city and the whole Northland province) and the bulk of the east-coast rail-served area of Auckland province. It will relieve considerably congestion at, and around, Frankton Junction, and will give a great impetus to settlement and industry in and beyond the area it is designed to serve. At present many passengers take buses between Waihi Station (near Paeroa) and Auckland city. No competing road services are permitted east of Waihi. The whole of this traffic will stay on the rail when the Paeroa-Pokeno line comes into operation.

South Island Main Trunk Line

Only a few miles in the vicinity of Kaikoura now separate the northern and southern ends of the South Island main trunk extension intended to make through connection between the southern lines and Picton, the most northerly of the South Island ports. But for a war-created shortage of materials, this line would already have been completed. The present shipping facilities between Wellington and Picton would prove inadequate for the demands expected to develop when through rail access from Picton to most parts of the South Island is available; and Marlborough province, served directly by the new line, now one of the most backward portions of the Dominion because of poor transport facilities, may be expected to show rapid development.

The 200-odd mile stretch from Picton to Christchurch lends itself to fast travel over its greater portion. In all the construction linking Parnassus (85 miles north of Christchurch) with Wharanui (56 miles south of Picton) modern ideas have prevailed. The minimum curve was made 15 chains (except over a short section of difficult coastal country).

Better Road-Bed Needed

Rails of 70 lb. have represented standard practice on main lines for many years. More recently, 85-lb. rails have been provided on certain portions of track, and 110-lb. welded sections have been laid through the tunnels recently built near Wellington.

Some modern locomotives cannot well use the 70-lb. track at higher speeds. The time is ripe for laying of heavier rails in all main lines.

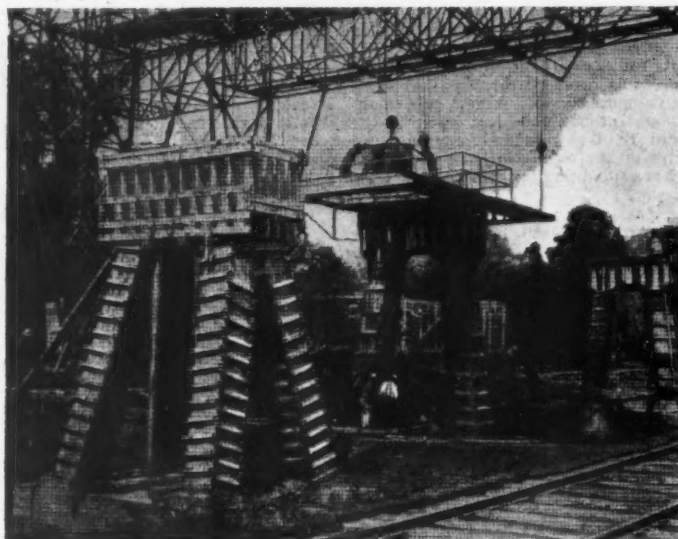
Important Improvements

Work which should be included in any future comprehensive railway programme includes the building of the new Christchurch Station, increasingly necessary as the South Island main line nears completion; increased use of remote-control and centralised traffic-control equipment; substantial extensions of the 3-colour-light signalling system in substitution for the tablet; increased duplication of lines; new stations at many country towns, with a general modernising of appliances and equipment; re-introduction of dining cars, modern in design and method of operation; extended use of railcars; and a greater use of electric traction to lessen dependence on the somewhat precarious coal supplies.

It may be that both England and America would be required temporarily to supply the major portion of the equipment required. As soon as wartime difficulties are removed the New Zealand Railways will have to move quickly to recover lost ground and to meet new demands on the country's internal transport.

The Atchafalaya Floodway Viaduct, N.O.T. & M.R.R.

This 3½-mile structure was built across a bog by means of travelling gantries; the 600 odd trestles and 30-ft. deck spans were entirely of reinforced concrete



In foreground special double-A trestle setting in shuttering. Single-bent trestles with shuttering in background. Note the platform suspended from the gantry

THE New Orleans, Texas & Mexico RR., a subsidiary of the Gulf Coast Lines of the Missouri Pacific System, recently built a remarkable all-ferro-concrete trestle and girder viaduct across the 3½-mile wide Atchafalaya floodway in the Southern States. As the bed of this floodway is composed of swampy alluvial soil, the usual haulage and other plant could not be used and instead, an ingenious method of construction was adopted. One reason for selecting an all-concrete structure was the fact that the alignment traversed dense forest and undergrowth making timber unsuitable due to danger from fire. The design of the viaduct was such that heavy rail traffic could be carried, and the following is a brief description of the completed structure.

The viaduct is 19,000 ft. in length and is designed for Coopers E-60 loading. It consists of 31-ft. 3-in. concrete girder deck spans supported by 590 standardised single-bent trestles and 20 special and anchor double-bent A-shaped trestles. The standard trestles vary from 22 ft. 6 in. to 28 ft. from top of footing to top of cap; each of the two legs is founded upon an r.c. footing supported by 12 timber piles. Some of the special trestles, however, were supported by steel-sheet piling, 90 ft. deep and driven 10 ft. into firm sand before being filled with concrete. All trestles have transverse tie members just below ground level and the double-bent anchor trestles also have longitudinal ties at the same level.

Transversely, the standard trestle legs have a batter of 1 in 8 and a uniform thickness of 2 ft. 3 in. Longitudinally (to the bridge centre line) the legs taper ¼ in. to the foot. The spans consist of two concrete girders each 2 ft. 8 in. deep, and were poured integrally with the 11-in. to 12-in. slab decking, giving a total span depth of about 4 ft. The deck has curbs

to retain the ballast and also a footway along one side throughout its length.

The first phase of the construction was the excavation by dragline excavators—working on long timber mats—of a central and continuous trench for the foundations of the trestles. The spoil from this trench was thrown up on each side to form two parallel embankments 3 ft. to 4 ft. in height. These embankments as well as keeping water out of the excavation, provided formations for a single-line construction track on one side and a double line on the other. The inner track of the double line and the track on the far side of the trench were spaced at 75-ft. centres, and served as runways for travelling gantries for both pile-driving and concreting. The outer double track was an ordinary material or service line. Crossovers between the double tracks facilitated the handling of material wagons. Spoil from the trench made a very soft surface for a railway embankment, and at first great difficulty was experienced in maintaining the tracks. Sleepers were laid side by side along the full length of each track; some of them were as long as 12 ft. Even so, the tracks had to be raised eventually 6 in. by mixing sand and gravel dry with one sack of cement per cu. yd. and packing the mixture under the sleepers; water oozing up from the formation proved sufficient for the hydration of the cement. Subsequent hardening reduced track maintenance to 10 per cent. of that formerly required.

Each of the 12 timber piles under the trestle footings was driven with a batter of from ¼ in. to ½ in. to the foot to increase the area of load distribution and to resist horizontal forces; 14,000 piles each 50 ft. to 60 ft. long were used; some 739,000 lin. ft. of piling in all were driven, all on a batter. The piles had a minimum dia. of 8 in. at the top and

were from 16 to 18 in. dia. at the butt. The driving plant used was designed by the contractors and built in their field workshop for under £2,500. It consisted of a girder span about 85 ft. in length supported at each end by two wagon bogies running on the two tracks at 75-ft. centres, and stiffened with under-slung truss tie rods. The pile-driver frame and its steam power unit, were mounted on track carried by this girder span, and could therefore move transversely as well as parallel to the railway. The driving leads (guides) were 75 ft. long and were hinged on a ball-and-socket joint about 18 ft. below their tops to allow of longitudinal and transverse swing, to suit the batter required. The piles were brought alongside the driver by the service line and lifted from the wagons and swung into the leads by a line from the driver. The sub-soil encountered was soft clay with some sand pockets, but a minimum bearing of 15 tons was obtained. Construction of the concrete footings followed closely on the heels of the pile driving.

For constructing the trestles, two gantries were designed and built by the contractors in their field workshop at a cost of under £2,000 each. They ran on



Alternate girder spans and decking setting in shuttering carried on longitudinal beams supported by completed standard single-bent trestles

the inner rail only of each of the two 75-ft.-spaced tracks and had four trusses, in pairs, extending the full 75-ft. spacing and with one end cantilevered out beyond and over the service line, to facilitate the picking up of material and plant from the railway wagons. A petrol-driven traversing triple-drum hoist ran along the top of each gantry transversely to the railway. It was used for hoisting shuttering, reinforcement and concrete skips. The motive power for driving the whole gantry along the rails was transmitted through bevel gears and a long shaft, with chain drives to the carrying wheels.

The concreting plant was mounted on railway wagons with a 1-cu.-yd. mixer delivering the concrete to skips under the gantry. As there was so much duplication in the viaduct, steel shuttering with rapid-acting bolts and connecting devices was used. There were six sets of shuttering for the footings, 14 sets for the

(Continued on page 193)

Diesel Railcar High-Speed Inspection Run on the Central Argentine Railway

Testing the riding qualities of a C.A.R. twin-articulated diesel railcar, and a B.A.P.R. single-unit diesel railcar on earth-ballast tracks



Standard twin-coach articulated Ganz diesel railcar, C.A.R.

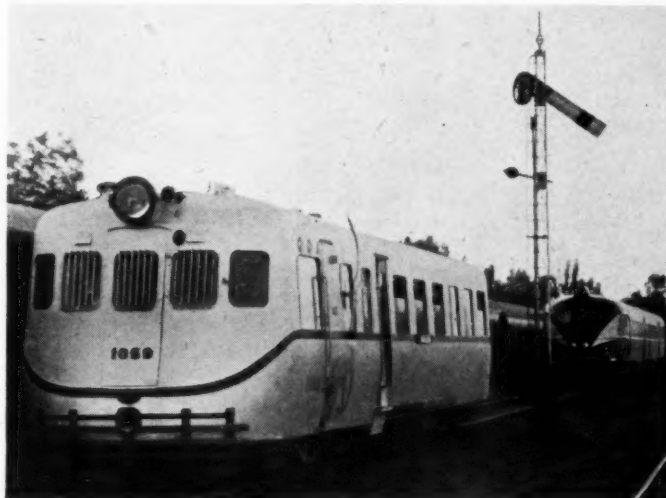
TO test the general behaviour of a high-speed railcar on earth-ballasted tracks zones, a standard twin-articulated Ganz diesel railcar, of the type used by the Central Argentine Railway on its inter-urban services, left Retiro Station (Buenos Aires) at 9.2 a.m. on September 8, 1944, on an experimental run to Tucumán, 1,157 km. (723 miles) from Buenos Aires.

To enable comparisons of riding comfort to be made, a single-unit Ganz car fitted with the Kimberley patent suspension and Voith-Sinclair hydraulic transmission, owned by the Buenos Ayres Pacific Railway, also made the trip; this railcar left Buenos Aires ahead of the official party, which comprised Sir Montague J. Eddy, Major R. K. Hubbard (Deputy General Manager, C.A.R.); Mr. H. N. Anderson (General Manager, B.A.G.S.R. & B.A.W.R.); Mr. Mervyn F. Ryan (General Manager, B.A.P.R.); the Chief Engineers, Chief Mechanical Engineers, Chief Electrical Engineers, Traffic Managers, and technical staffs of the four British broad-gauge railways in Argentina.

The first stop was made at Rosario at 12.9 p.m.; this station is 303 km. (190 miles) from Retiro Station and this distance was covered in the record time of 3 hr. 7 min., at an average speed of 97.4 km.p.h. (61 m.p.h.), the maximum speed during this part of the run was 130 km.p.h. (82 m.p.h.). After a short stop, Mariano Saavedra was reached at 2.31 p.m., where the official party transferred to the B.A.P.R. railcar, which left at 2.40 p.m. and continued to run ahead. After a stop of 21 min. to allow the preceding railcar to clear the sections ahead, the C.A.R. railcar arrived at Ceres at 5.24 p.m.; the 268 km. (168 miles) from Rosario was covered in the running time of 4 hr. 20 min., at an average speed of 85 km.p.h. (53 m.p.h.). Actually, 33 min. were lost on account of the stop at Mariano Saavedra and subsequent signal checks. An overnight stop was made at Ceres, where the railcars were refuelled.

At 8.33 a.m. on September 9, the official party continued its journey on the C.A.R.

railcar; the B.A.P.R. railcar had left at 8 a.m. From Ceres northwards, the track is earth ballasted and runs through some of the dustiest zones of the Provinces of Santiago del Estero and Tucumán, where no rain had fallen for seven months. Speeds



Single-unit Ganz diesel railcar fitted with Kimberley patent suspension and Voith-Sinclair hydraulic transmission, B.A.P.R.

up to 120 km.p.h. (75 m.p.h.) were obtained at isolated points, but in general the maximum speed was kept at about 110 km.p.h. (69 m.p.h.), as this gave the greatest degree of comfort to the passengers. With the speed varying between 80 km.p.h. (50 m.p.h.) when passing through stations and 110 km.p.h. (69 m.p.h.) between stations, the run of 336 km. (210 miles) to La Banda was covered in 4 hr. 10 min., at an average speed of 81 km.p.h. (50 m.p.h.). It should be pointed out that there are several stretches of track where

the maximum permitted speed is 80 km.p.h. (50 m.p.h.), and these precautions were observed carefully.

The official party left La Banda in the B.A.P.R. railcar at 2.20 p.m., and reached Tucumán at 4.25 p.m. The C.A.R. railcar followed at 2.45 p.m. from La Banda and covered the 149 km. (95 miles) to Tucumán in 2 hr. 1 min., at an average speed of 74 km.p.h. (46 m.p.h.). The total running time taken by the C.A.R. railcar for the trip of 1,157 km. (723 miles) was 13 hr. 38 min., an average speed of 85 km.p.h. (53 m.p.h.).

Details of C.A.R. Railcar

Some particulars of interest referring to the C.A.R. railcar, which incorporates the latest improvements and modifications which experience has shown to be necessary to obtain the highest service efficiency and reliability are as follow: The power bogie at the B.M. end has had the layout of air piping and electrical connections re-designed as also the re-location of the electro-pneumatic valves and relays. The main openings in the bogie-side frames have been blanked off to prevent the collection of dirt and inflammable material; this makes a bogie which is easy to clean and of which all working parts are easily accessible.

The power unit has the starting-motor contactors mounted in the cab; flexible exhaust connections have been replaced by an articulated pipe with specially designed hemispherical joints; the main flexible water connections between bogie and body have been modified from the usual slip-on joint to a well designed flanged coupling; to reduce axlebox horncheck wear, a pliable leather apron is arranged between

the axlebox and the road wheel to eliminate the effects of brake-block dust as far as possible. The unit has completed 12,000 km. (7,500 miles) since the last general overhaul. The distance run since it was put into service on June 6, 1938, up to August 31, 1944, is 1,003,907 km. (627,440 miles).

It is stated that the officials were favourably impressed with the results of the trial, especially as to the comfort and riding qualities of the C.A.R. railcar and the comparative absence of dust up to speeds of

100 km.p.h. (62 m.p.h.), but over this speed the riding tended to deteriorate, except on the best stretches of track.

The B.A.P.R. railcar rode very well, and, on account of the design of the suspension, it appeared to run more smoothly with complete absence of any pronounced hunting. As its maximum speed did not exceed 100 km.p.h. (62 m.p.h.), it was not possible to make direct comparisons over the higher-speed ranges.

The railcars commenced the return run on September 11, and reached their destination the next morning. The C.A.R. railcar covered the distance in a total running time of 14 hr. 19 min. to its base at Victoria, at an average speed of 80 km.p.h. (50 m.p.h.). The fuel consumption for the round trip of 2,314 km. (1,446 miles) worked out at 41 kg. (90 lb.) per 100 engine km. (62.5 miles). No addition of lubricating oil or cooling water was made throughout the run; these were calculated on normal experience to be 7 kg. (15 lb.) and 30 kg. (66 lb.) respectively, for the complete unit, that is, including both engines. No adjustments or special servicing was required throughout the run, and only routine inspections and checking were carried out in Tucumán before the return journey.

The condition of the railcar and



Left to right: B. G. Borissow, Principal Assistant to the Electrification Superintendent, C.A.R.; K. N. Eckhard, Electrification Superintendent, C.A.R.; R. A. Muir, Assistant Engineer Running Shed (Diesel Section), C.A.R.; W. H. Edwards, Assistant Works Manager, Victoria Shops, C.A.R.

its mechanical equipment was excellent when a detailed examination was carried out in the running shed on return to Victoria; when special attention was given to all parts that might have suffered as a result of dust.



A group of railway officials at Tucumán Station on the day of the test run

Left to right: R. E. Kimberley, Chief Mechanical Engineer, B.A.P.R.; F. L. Creswell, Engineer-in-Chief, B.A.G.S. & W. Railways; E. Myatt, Locomotive Running Superintendent, C.A.R.; R. W. Peake, District Engineer, San Martín, C.A.R.; Ratcliffe Wright, Chief Electrical Engineer, B.A.G.S. & W. Railways; D. S. Stoker, District Traction Superintendent, Tucumán, C.A.R.; Mervyn F. Ryan, General Manager, B.A.P.R.; Sir Montague J. Eddy; J. H. Paganini, Division Superintendent, Tucumán, C.A.R.; Major R. K. Hubbard, Deputy General Manager, C.A.R.; H. N. Anderson, General Manager, B.A.G.S. & W. Railways; Ormond Steven, Chief of Operation, B.A.G.S. & W. Railways; P. Goddard, Traffic Manager, C.A.R.; F. H. Pank, Chief Mechanical Engineer, C.A.R.; R. G. Bruce, Assistant Engineer (Electrical), B.A.P.R.; R. Cameron, Traffic Manager, B.A.P.R. J. Bisbal, Assistant Traffic Manager, C.A.R.

NEW U.S.A. RAILWAY ROLLING STOCK.—A Reuters message from New York states that U.S.A. railways placed 40,392 freight vehicles and 938 locomotives into service during 1944, according to an announcement of the Association of American Railroads. Included in the locomotives were 608 diesel, 329 steam, and one electric, com-

pared with 329 diesel, 429 steam, and 15 electric in 1943. Of the new freight vehicles, 14,476 were plain box cars, 3,132 automobile cars, 4,065 gondolas, 16,656 hoppers, 1,319 flat, 482 refrigerator, 261 stock, and one other type. U.S.A. railways had 36,597 new freight cars on order for January 1, and 568 locomotives. The latter

included 400 diesel, 166 steam, and two electric.

PORTUGUESE-BUILT LOCOMOTIVE.—What is stated to be the first railway locomotive built in Portugal was placed in service recently. Its cost is reported to have been £8,900.

RAILWAY NEWS SECTION

PERSONAL

G.W.R. CHAIRMANSHIP

Sir Charles Hambro, K.B.E., M.C., has intimated that, in consequence of other commitments, he regrets he will be unable to continue to act as Chairman of the Great Western Railway Company, and will not, therefore, offer himself for re-election in that capacity after the general meeting of the company on March 7. He will retain, however, his seat on the board.

The directors have invited the Rt. Hon. Viscount Portal of Laverstoke, D.S.O., M.V.O., to fill the office of Chairman.

Lord Balfour of Burleigh has accepted the invitation of Lloyds Bank Limited to become one of its directors with a view to his becoming in the near future its Joint Deputy-Chairman. The District Bank Limited, the representative of which he has been on the Committee of London Clearing Bankers since 1936, has agreed to release him from its board. Lord Balfour of Burleigh is a Director of the London & North Eastern Railway Company, and of the San Paulo (Brazilian) Railway Co. Ltd.

It is announced in *The London Gazette* that at Buckingham Palace on February 13 the King conferred the honour of Knighthood on the undermentioned gentlemen: Professor Leslie Patrick Abercrombie; Mr. Peter Boswell Brown; Mr. Arthur Percy Morris Fleming; Mr. William Percival Hildred; Mr. Allan Campbell Macdiarmid; Alderman William Walker.

The Governor of Northern Ireland has appointed Senator Major Sir Roland Nugent as Minister of Commerce. In addition to his ministerial duties, which he will undertake without remuneration, Sir Roland Nugent will continue to act as Leader of the Senate. Mr. Brian Maginess, Parliamentary Secretary to the Ministry of Commerce, has resigned that office, which he had occupied temporarily; the vacancy will not be filled at present, and the Prime Minister will answer for the Minister of Commerce in the House of Commons.

Sir Frederick West (Chairman of the Manchester Ship Canal Company) has been re-elected President of the Dock & Harbour Authorities' Association, and Lt.-Colonel Basil Nield, M.P., has been re-elected Parliamentary Chairman.

Sir Alexander Dunbar has resigned from the board of Taylor Bros. & Co. Ltd. Mr. F. Leach has announced his intention to retire on March 1, 1945. Mr. A. G. E. Briggs and Mr. C. H. Dunt have been appointed Directors of the company; the latter will retain his position as Secretary.

Mr. H. P. J. Lyell has been appointed Principal, Central Training Institute, Kaalfontein, South African Railways & Harbours.

G.W.R. APPOINTMENTS

The Great Western Railway announces the following appointments:—

Mr. S. B. Taylor, Assistant to Secretary, to be Acting Assistant Secretary.

Mr. L. W. Conibear, Assistant Divisional Superintendent, Bristol, to be Acting Chief Clerk, Office of the Superintendent of the Line, Paddington, from January 29.

Mr. R. H. Whittington, Junior Assistant to Divisional Superintendent, Swansea, to be Acting Assistant Divisional Superintendent, Bristol, from January 29.

We regret to record the death on February 9, after an operation, of Mr. Guy Cochrane Assheton Smith, aged 55, Deputy General Manager (Rationing & Recruiting), North Western Railway, India, who proceeded on leave, preparatory to retirement, on September 28, 1944. As recorded in our issue of November 3 last, he was to have taken over from Mr. A. T. Pegge, who is retiring, as General Manager of the Barsi Light Railway, next March. Mr. Assheton Smith was born in Darjeeling on September 28, 1889. He was educated at St. Paul's School, Darjeeling; at Liverpool, near Sydney, New South

Wales; and at Dover College, Kent. After a period at Nottingham University, he went to Doncaster as an apprentice in the Locomotive Works of the G.N.R. In 1912 he went to Peter Brotherhood Limited; later he joined Vickers Limited, and worked on large naval guns and torpedoes. On August 5, 1914, Mr. Assheton Smith joined the Middlesex Regiment, and shortly was drafted to India. He received a commission in the 15th Lancers in July, 1916, and was on active service until October, 1919. He had been appointed to the Indian State Railways in 1914, but his appointment was kept pending until April, 1920, when he was posted to the N.W.R. as Personal Assistant to Deputy (Running) in the Locomotive Superintendent's Office at Lahore. After periods as Assistant Locomotive Officer at Sukkur and Quetta, he became District Locomotive Officer, in which capacity he was posted at Rawalpindi, Multan, Quetta and Lahore. Subsequently, he was District Carriage Superintendent at Karachi, Works Manager at Rawalpindi; Senior Assistant (Running), Employment Officer in Headquarters; Deputy Chief Operating Superintendent; Senior Assistant (Technical); Deputy Chief Mechanical Engineer; Deputy Chief Mechanical Engineer (Maintenance); and Deputy General Manager.

We regret to record the death on February 11, at the age of 72, of His Honour Her-

L.N.E.R. APPOINTMENTS

The L.N.E.R. announces that Mr. G. A. Souter, who, in the absence of Mr. C. G. Jarrett, on service with H.M. Forces, has been Acting Hotels Superintendent (Scottish Area) and at the same time performing the duties of Manager of the North British Station Hotel, Edinburgh, has been relieved of the latter responsibility to enable him



The late Mr. G. C. Assheton Smith

Deputy General Manager (Rationing & Recruiting),
North Western Railway, India

to devote his full attention to the supervision of the company's hotels in Scotland, especially in respect of post-war matters; and that Mr. James H. Linton, Resident Manager of the Royal Station Hotel, Newcastle, has been appointed Resident Manager, North British Station Hotel, Edinburgh.

The L.N.E.R. announces also that Mr. S. F. Hoggar, Chief Clerk, Marylebone, has been appointed Acting Goods Agent at Marylebone.

The King has awarded the Imperial Service Medal to three employees of the Transport Department (Railway Branch) of Tasmania.

We regret to record the death on December 21 last, at San Carlos de Bariloche, Argentina, at the age of 72, of Mr. John Adam Meelboom, M.Inst.T., formerly for many years Chief Accountant, and afterwards Assistant to the General Manager, Central Argentine Railway. He retired in 1935. After experience in England, Mr. Meelboom was appointed Assistant Accountant to the Buenos Ayres Great Southern Railway in 1902. Three years later he went to the Cuban Central Railway to reorganise its accountancy and stores book-keeping systems. In 1908 he was appointed Chief Accountant, Central Argentine Railway, his tenure of which office was marked by important reorganisation schemes and the institution of various

new systems of departmental accounts. He was appointed Assistant to the General Manager in 1933, and held that post until his retirement. Mr. Meelboom was the author of the text-book "Bank Book-Keeping and Accounts."

Mr. George Sydney Bellamy, M.I.Loco.E., M.I.P.E., Acting Mechanical & Electrical Engineer (Scotland), L.M.S.R., who, as recorded in our February 2 issue, has been appointed Mechanical & Electrical Engineer (Scotland), received his early training in the Midland Railway locomotive shops at Derby. During the last war he saw service with the 84th Field Company, Royal Engi-

Lord Mildmay of Flete, who recently resigned from the board of the Great Western Railway Company, has resigned his Directorship of the G.W.R.-associated company, the Devon General Omnibus & Touring Co. Ltd.

Mr. Frederick George Bristow, C.B.E., M.Inst.T., who, as recorded in our January 19 issue, has been appointed Director of the National Road Transport Federation, has been Chief Executive Officer of the Commercial Motor Users Association since 1906. He was one of the founders of the Safety First Movement in this country in

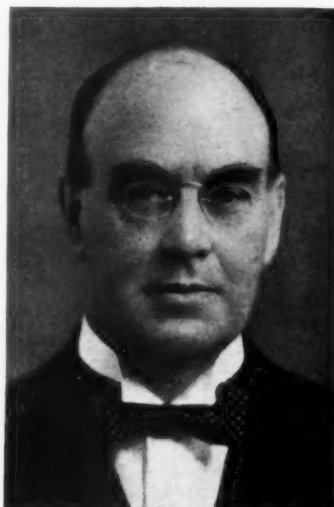
pamphlets, papers and articles on transport and allied questions. Mr. Bristow is a Barrister-at-Law of the Inner Temple.

Mr. G. W. Quick Smith, LL.B., F.C.I.S., M.Inst.T., who, as recorded in our January 19 issue, has been appointed Secretary of the National Road Transport Federation, joined the Australian Commonwealth Line in 1922. In 1938, Mr. Quick Smith was appointed Assistant Secretary of the London & Home Counties Haulage Contractors' Association and of the National Road Transport Employers' Federation, and in 1941 was appointed Secretary. He was Assistant Secretary of the Employers' Panel



Mr. G. S. Bellamy

Appointed Mechanical & Electrical Engineer (Scotland), L.M.S.R.



Mr. F. G. Bristow

Appointed Director, National Road Transport Federation



Mr. G. W. Quick Smith

Appointed Secretary, National Road Transport Federation

neers, and on the headquarters staff of the Railway Operating Division, R.E., attaining the rank of Captain under Lt.-Colonel C. W. Paget, and was mentioned in dispatches. Mr. Bellamy resumed duty in June, 1919, as Works Inspector at Derby, and in the next year became Resident Inspector at Newcastle-on-Tyne of locomotives under construction for the Midland Railway. In October, 1922, he was transferred to the General Superintendent's Department as Mechanical Inspector, and early in the next year was appointed Freight Trains Assistant, Midland Division, L.M.S.R. He became Assistant Superintendent of Motive Power, Midland Division, in 1925, and Assistant to the Superintendent of Motive Power for the L.M.S.R. in 1926; in 1928 he was promoted to be Assistant Superintendent of Motive Power, Chief General Superintendent's Department, and in 1932 was appointed Works Superintendent (Locomotives), Derby. In 1938 Mr. Bellamy took command of the 155th Railway Workshop Company, R.E. (S.R.), with the rank of Major; he was mobilised in August, 1939, and formed the No. 1 Railway Workshop Group with the rank of Lt.-Colonel. He saw service in France, and returned to England, after the fall of France, on June 18, 1940. He was mentioned in dispatches. Mr. Bellamy returned to the L.M.S.R. in August, 1940, in his former position at Derby; but early in 1941 he was appointed Acting Mechanical & Electrical Engineer (Scotland), in place of Mr. R. A. Riddles (now Chief Stores Superintendent, L.M.S.R.), who at that time was Deputy Director-General of Royal Engineer Equipment, Ministry of Supply.

1916, has since held various offices in that movement, and is now Chairman of the Royal Society for the Prevention of Accidents. He is a member of the Ministry of Transport Statutory Advisory Panel of Experts; a member of the Ministry of War Transport Committee on Road Safety; and Honorary Joint Secretary of the Road & Rail Central Conference. He has served on many Government departmental and other committees since 1918, and since 1932 has been a member of the Permanent International Commission of Road Congresses. Mr. Bristow is a Foundation Member, and former Member of Council, of the Institute of Transport. He has been associated closely with the British Road Federation since 1932, when he was one of the founders of that body, and acted as Honorary Secretary of the Federation from 1933 to 1936, and again from 1939 to 1943. He was Honorary Secretary of the Standing Joint Committee of Mechanical Road Transport Associations from 1912 to 1934; Honorary Secretary of the Motor Transport Employers' Federation from 1918 to 1938; Honorary Joint Secretary of the Joint Industrial Council for the Road Transport Industry from 1919 to 1920; and a member of the National Joint Conciliation Board for the Road Transport Industry from 1934 to 1938. In Guildry he is the Immediate Past-Master of the Worshipful Company of Carmen, and a Liveryman of the Worshipful Companies of Founders and of the Gold & Silver Wyre Drawers. He is the author of "The Law of Motor Vehicles," "A Legal Guide for Commercial Motor Drivers," "A Digest of the Construction and Use of Motor Vehicles Regulations," and many

of the National Joint Conciliation Board, and of the Road Haulage Central Wages Board which superseded it; and he was appointed Secretary in 1941. He has been Secretary of the National Conference of Express Carriers since its formation in 1938; Secretary of the Standing Joint Committee of Road Hauliers National Organisations since its inauguration in 1939; and Secretary of the Wholesale Meat & Provisions Transport Defence Association (familiar as the Meat Transport Pool) since its inception in 1939. He is Secretary to the industry's representatives on the Road Haulage Consultative Committee set up by the Minister of Transport in 1940 to deal with matters of common interest to the Ministry and the industry; Joint Secretary of the Road Transport Catering & Accommodation Joint Committee set up in 1942 to improve facilities for rest and refreshment for road-transport workers; and Secretary of the London Cartage & Haulage Contractors Provident Institution. Mr. Quick Smith was appointed Secretary of the Road Transport Organisation Joint Conference, set up at the end of 1942 to create a united organisation for the road-transport industry, as a result of the work of which conference the Road Haulage Association, Traders' Road Transport Association, and Passenger Vehicle Operators' Association have been formed; the three last-named associations in turn combine to form the National Road Transport Federation, of which Mr. Quick Smith is the first Secretary. In 1939, Mr. Quick Smith attended the International Labour Conference at Geneva when the question of drivers' hours was on the agenda.

TRANSPORT SERVICES AND THE WAR—282

Locomotives for Dominions and Colonies

Since 1939 the L.N.E.R. has transported, without a hitch of any kind, from its Openshaw Manchester depot to British ports for shipment overseas 122 specially-built locomotives. South Africa received 30, Burma 24, Brazil 16, Rhodesia 13, Kenya & Uganda 13, Sierra Leone 6, the Gold Coast 6, Nigeria 7, the Bengal-Nagpur Railway 4, and the Congo-Ocean Railway 3. All these locomotives were of exceptional size and power, the majority of the Beyer-Garratt articulated type. For example, the South African locomotives weigh 180 tons and the Bengal-Nagpur 230 tons in working order.

It is indeed an achievement that, in the midst of building up arms for the invasion

seas, Beyer, Peacock & Company has produced many different types of munitions, including a large number of Churchill tanks which needed special loading both because of their great weight and also because their 9 ft. 6 in. width was beyond the standard loading gauge of British railways.

Transport Absenteeism

The severe weather conditions in January resulted in extensive absenteeism due to sickness in some parts of the country, and on January 29 the General Manager of the Glasgow Corporation Transport Department issued a public notice to the effect that for this reason it had been impossible to maintain normal services. He quoted, as an example, that on January 27 no fewer than 332 men and 871 women were

the eastern group of countries comprising Greece, Jugoslavia, Czechoslovakia, and Poland.

Spanish Rail Charges Increased

The 25 per cent. increase in Spanish railway passenger fares, and the various goods-rate increases, to which we made reference in our January 12 issue (page 45), became effective on January 1.

Coke in German Tank Wagons

As from November 1 last, low-temperature-carbonisation coke must be conveyed in tank wagons on the Reichsbahn. This regulation is stated to have been made because of the tendency of this type of coke to ignite in the open air under certain conditions.

Heavy Damage to Milan Central

According to a report from Milan dated January 15, a recent R.A.F. air raid on Milan caused serious damage to Milan Central Station. A direct hit is said to have destroyed the main concourse at the end of the platforms. Large numbers of persons who crowded the great hall are reported to have been killed or injured.

First Convoy Reaches Yunnan

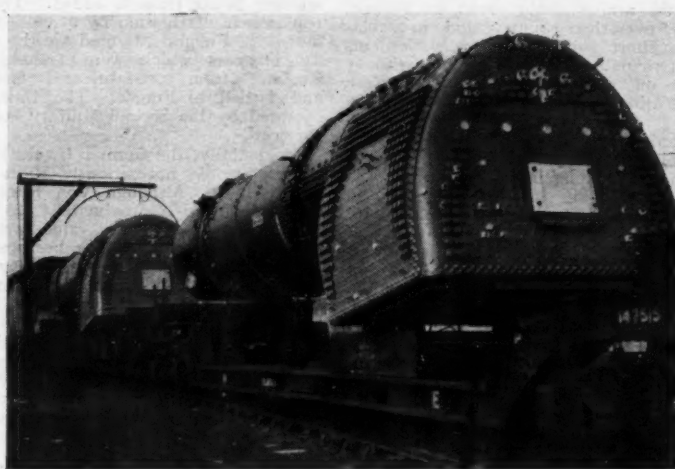
A crowd of 500,000 persons on February 4 welcomed the first convoy to reach Kunming, the capital of the Chinese border province of Yunnan, along the Burma Road. The 100 heavily-laden supply vehicles had come from Ledo, in India, 1,044 miles away, through Burma, in 23 days, of which only 20 days had actually been spent on the road. The convoy entered China at Wanting on January 28, as we recorded briefly in our February 2 issue, page 117. A description of line of communications from Assam to Free China was published in our February 9 issue, pages 135-6.

"International" Bridge in Persia

Paiforce (Persia & Iraq Command) is one of the most cosmopolitan commands in which British troops are serving. British, Indian, and American troops are working there side by side, and the Russians are there as well. The co-operation between all four is stated to be close and excellent. Recently, as a corollary to their need for more petrol, the Russians suggested that Abadan Island should be linked with the Persian mainland, and G.H.Q. decided to build the Karun Bridge. This bridge, of 56 pontoons, supporting a span of 950 ft., was built in six days. It was planned by a British G.H.Q.; built of American bridging equipment; erected by a field company from an Indian division; and its purpose was to carry aid to Russia. A daily average of more than 650 vehicles now passes over this bridge.

U.S. Servicemen Help with Christmas Mail

Over the Christmas season, from December 1 to January 2, commanders of the United States Armed Forces were authorised to permit men in their commands to help the railways in handling mail, express, and freight traffic, undertaking any tasks offered by the railways at stations, goods depots, and terminals. The conditions were that Servicemen should be employed only when civilians were not available; that their acceptance of such employment should be entirely voluntary; and that it should be allowed only if the men were absent on leave or in their normal off-duty periods. They were paid, of course, by the railways employing them. Over the previous Christmas season a total of 60,000 U.S.A. servicemen was employed in this way.



Dispatch on December 9 last by the L.N.E.R. of the final two of an order for 30 locomotives for the South African Railways supplied by Beyer, Peacock & Co. Ltd. These are included in the total of 122 locomotives exported by the company between September, 1939, and December, 1944. (See accompanying notes)

of Europe, this country has been able to construct locomotives for the urgent needs of war transport in the Dominions and Colonies, as well as for strategic lines directly connected with the various fronts. The credit for this work is due to Beyer, Peacock & Co. Ltd., which recently received technical experts from the Turkish State Railways in connection with outstanding pre-war contracts and future requirements.

After assembly in the works, the locomotives were tested in steam, and then dismantled and loaded in sections on special trains. The two 4-8-2 locomotives which completed the South African order of 30 required 17 specially-selected vehicles for their transport. They formed a train of 360 tons which took them to a North-West port. The eight-wheel tenders, capable of holding 6,050 gal. of water and 14 tons of coal, were crated, and component parts were boxed in large wooden cases. The framing, boilers, and wheels each had their own vehicles.

Difficulty arose in the choice of wagons when locomotives were consigned to Scottish ports, as there is a difference of 4 in. in the height of the English and Scottish loading gauges. Wagons therefore had to be selected which would permit the loads to pass through the Scottish gauge. Shortage of chains and screws was also a handicap, particularly as the boilers had to be loaded to negotiate platform curves *en route* which gave little more than $\frac{1}{2}$ -in. clearance.

In addition to the locomotives or over-

absent from duty, a total of 1,203. As a result, 111 tramcars and 43 buses had to be withdrawn from service.

Railway Equipment for Europe

Further details are now available regarding the negotiations for the provision of railway equipment for liberated Europe, to which we made reference last week (page 165). The 700 steam locomotives for France have been allocated to three American manufacturing companies as follow: 260 to the American Locomotive Company; 260 to the Baldwin Locomotive Works, and 180 to the Lima Locomotive Works. It has now been announced that the number of locomotives which Belgium is seeking is 300. It has been reported (incorrectly) that these will cost approximately \$36,000,000, but this sum of money is the total credit for transport equipment which Belgium is seeking; the 300 locomotives should absorb approximately one half. Any deliveries to Belgium in 1945 are regarded as doubtful. Some of the Belgian locomotives may be financed temporarily by the U.S.A. Government, but Belgium will be required to pay in full eventually. Reports that Czechoslovakia is seeking either 130 or 150 steam locomotives in the U.S.A. are entirely without official confirmation. The immediate requirements of Czechoslovakia are included in the 280 locomotives which T.A.C.I.T. has been successful in arranging through U.N.N.R.A. for

The Railway Situation in France

Recent information from France would seem to indicate that there is a lack of realism in certain French circles regarding the progress of the war in relation to the presence of Allied Forces on French soil, and their use of French transport. It is natural that a country which has been defeated in war and occupied by its enemy for four years should rejoice at its liberation by a British, American, and Canadian Expeditionary Force, but the task of that Force is still far from complete. Holland remains to be liberated, and the main enemy is still undefeated. It is therefore with regret that we saw the criticism in the French newspaper *Combat* of February 6 of the handling by the Allied High Command of French civilian requirements in railway transport. Under the heading "France is not asking for Charity" it said:—

"If the French people have been suffering dangerously from hunger, if Frenchmen have not received a single ounce of fuel; if large numbers of our factories are not working; this is because the Allied Armies are using our railways and our coal. It would therefore be far better if the U.S.A. imported railway locomotives, carriages, and coal rather than 'Aid'."

Combat then said that the Allied Command was using some 60 per cent. of available French rolling stock, and added: "What will happen if, as the Allied lines get longer and the Allied armies penetrate into Germany, they find nothing but destroyed material there. Will they then requisition our last locomotive and our last railway vehicle?"

It may be recalled that, in our January 5 issue, pages 18 and 19, we commented on the discrepancies between various official statements made in France concerning railway rolling-stock shortages, and added that it seemed probable that M. Rene Mayer, the French Minister of Transport, was making pessimistic estimates for political purposes, because of negotiations for supplies from the U.S.A. At the end of last year there were some 800 American-built locomotives in France for military use. This figure had been increased by February 7 to 1,150, and by February 16 to 1,539 (apart from 130 diesel locomotives); a further 651 are now in England. Over and above these, the U.S.A. War Department has issued on behalf of the French Government letters of intent for the purchase of 700 locomotives from the U.S.A. at a cost of approximately \$84,000,000. Reference to this order was made in our issue of December 8 last (page 581) and mention of the work of T.A.C.I.T. in facilitating the negotiations was made last week (page 152). The delivery of 350 of these engines is expected by the end of the present year, and the remainder should be turned out, according to present programme figures, during the first half of 1946. The French Government is expected to make ultimate payment for all the 700, but a message from Washington indicates that it is possible that the U.S.A. will finance part of the order initially under the long-term provisions of the Lease-Lend Agreement, which is in the final stages of negotiation.

A balanced view of the situation was expressed by Mr. Joseph C. Grew, Acting U.S.A. Secretary of State, in the course of a lecture which he delivered before the Foreign Policy Association in Philadelphia on February 2. After emphasising the Allied desire to aid the French in their

distress, he pointed out that, from the military viewpoint, France is the supply area behind the principal battle line of the major Anglo-American effort to destroy the enemy. Before France could cease to be such, the battle must be won, and until then priorities must be weighed most carefully. Munitions, machines, and supplies must continue to flow, not to France, but through it, to support the fighting beyond. One of the major decisions of the Allies in connection with the Western European military operation was that the Allied military, unlike the German military, would be completely self-sufficient, and that the produce of France would not be requisitioned by the Allied Armies. The amazement and gratitude of the French over the fact that gigantic armies could land in France, deploy over their country, and, in a relatively short period, drive the Germans from virtually all of France, without living off the land, was the complete justification for that decision, Mr. Grew said. However, some of that French gratitude turned to dismay when the inevitable things that go wrong in war began to go wrong in France. First, was the condition of internal transport in France. Between German demolition, sabotage by French resistance in aid of the Allied Armies, and Allied bombings, there was not much left in the way of bridges, canal locks, marshalling yards, important rail centres, or rolling stock. Mr. Grew emphasised that French ports were being reconstructed, and French means of transport improved. He stated that, at the time of the landing in Normandy, the stock of French locomotives had dropped to 1,000; there were now several thousands. Such reconstruction and repair, though undertaken for military reasons, accrued directly to the benefit of the French people.

In connection with Mr. Grew's general statement of policy, it is perhaps worthy of record that, in the early stages of the Western European campaign, the American Forces necessarily relied mainly on road transport. On August 25 last, the Red Ball Highway Express was instituted to haul supplies to the First and Third Armies. The name Red Ball in pre-war days denoted railway transport of very high priority in the U.S.A., and it was therefore adopted for this motor lorry service in France, to which was assigned the task of moving very heavy tonnages of maintenance and reserve supplies, largely what are termed POL (petrol, oil, lubricants). Even after some railways had fallen into Allied hands, and had been restored, approximately 75 per cent. of the maintenance and reserve supplies continued to be moved by motor lorry. A special route was selected for the service, allowing only one way traffic, and restricted to the lorries of the Red Ball Express. This express constantly lengthened as our Armies advanced, and it continued to haul supplies to the armies for 81 days without interruption. Then, on November 14, the job was taken over by the Second Military Railway Service of the U.S.A. Transportation Corps. Railways had been restored sufficiently to run trains to railheads in the territories of the First, Third, and Ninth Armies, and motor lorries were then used primarily for the sections between the railheads and the combat units. Within the first two weeks after it had taken over responsibility for the work, the Second Military Railway Service delivered 44,883 tons of war goods

in one day (November 26) compared with the daily record of 10,000 tons in September.

Even during September, however, the use of railways was not far behind the front, often by the expedient of traversing secondary line; trains crossed the Belgian border on September 15, and penetrated as far as Liège. The latest position is recorded in an official announcement dated January 29, from the Headquarters, Communications Zone, E.T.O., U.S. Army. This said:—

"A new Army freight train—the 'Toot Sweet' express—is speeding vital supplies over a 500-mile run from Cherbourg to supply points in Belgium in only 37 hours. Leaving Cherbourg at 18.00 hours daily, a 20-car train, carrying special material requested by forward supply services, reaches Paris the next day, where another 20-car train is added. The two reach their destination by 07.00 the next morning. Freight-cars used are the 20-ton TC box-cars which were assembled in England from pre-fabricated materials and ferried to France. The trains are operated by the Second Military Railway Service."

Incidentally, the German break-through in Belgium did not seriously affect these supply lines. Although Von Rundstedt's Forces over-ran approximately 225 miles of line, their military value was not great. Some had never even been used by the American Army, although they were in operational condition. Approximately 160 miles of railway captured were double track, and the remaining 65 miles were single track. Some had been turned over for civilian use, and the other was used in varying degree for lateral supply lines for short hauls. The supplies for the Armies along the central and southern front have been coming from the ports of Marseilles, Le Havre, Rouen, and Cherbourg, without passing through this territory, while supplies for the northern armies have been shipped in a more northerly direction through Antwerp.

Thousands of locomotives and goods vehicles assembled in England have been transported across the Channel and added to the 340 locomotives and 27,000 goods wagons captured in France, Belgium, and Germany. All are now being used to keep supplies moving up to the front. An extensive railway network in the territory bounded roughly by the Seine and Loire Rivers was consolidated into two lines. East of the Seine and behind the front, the lines of a new criss-cross system form a spider's web. At the end of November last there were 3,229 miles of single-track and 3,617 miles of double-track railway in operation in liberated France and Belgium. By the end of January, the total had exceeded 7,000 miles.

American Army engineers have reconstructed 172 major bridges destroyed by bombing or German demolition. In at least one instance they intruded into the German lines to secure steel girders urgently needed to repair a bridge so that an advance could continue. A squad, under cover of darkness, smuggled a mobile crane through territory dominated by German guns.

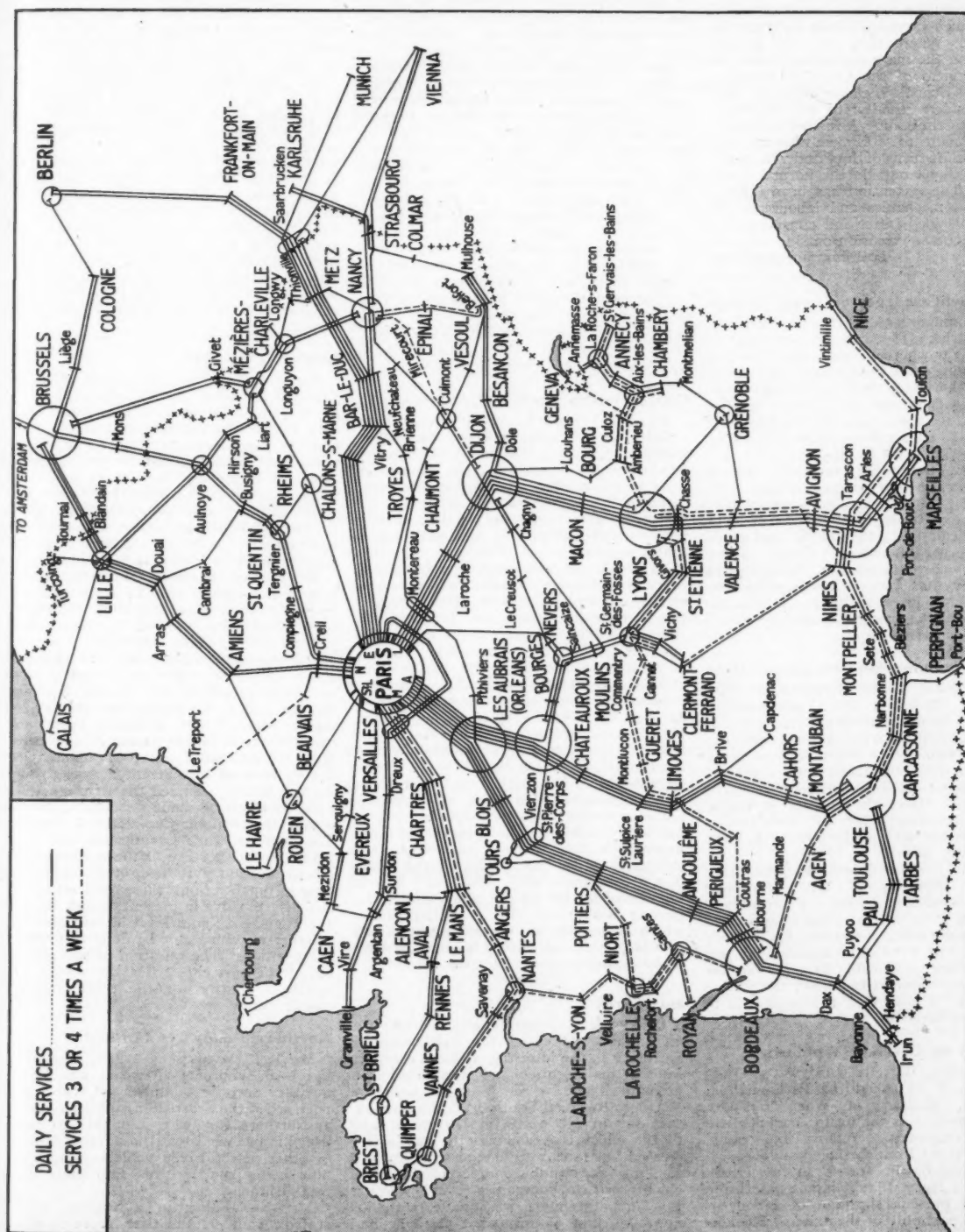
Despite the extensive military use of French railways, by the end of last year more than 1,700 captured locomotives had been returned to the French National Railways (on February 16 the figure had risen to 1,822), and nearly 30,000 pieces of captured rolling stock had been placed in service. As soon as possible, railways are returned to civilian control. For example, a 210-mile network

of railway in Normandy region was transferred to French control on November 30. Lines coming under French National Railways control included those from Lison to Vire; St. Lo to Coutances; Folligny to Argentan; Folligny to Coutances; and La Haye du Puits to Sottevast. Under the arrangement, the French assumed complete control over the operation and maintenance of the lines. Military traffic has first priority, and American locomotives and crews are provided to aid French per-

sonnel in the movement of American freight. In addition to railway installations and a great amount of captured German equipment, a complete communications system was turned over intact. The Americans left their own field telephones, so that the French could begin working without delay.

The latest position was announced at Allied Headquarters on February 16, when it was said that the French now have the exclusive use of the railways

west of Paris, excepting for one line from Cherbourg which is operated by the Army to haul vital war supplies. In the regions east and north-east of Paris, all trains are driven by French or Franco-American personnel. More than 308,000 tons of coal have been brought from the U.S.A., and this is used for civilian as well as for military needs. Every day 100 tons of coal enter Morlaix and Rouen for French needs. All fuel for diesel locomotives is imported from the U.S.A.



Diagrammatic map showing the express train services of France in May, 1944, immediately before "D-Day." This is based on a plan prepared by Captain E. S. Russell. The French passenger services during the German occupation form the subject of an editorial article, page 176

Questions in Parliament

Workmen's Fares

Mr. W. H. Mainwaring (Rhondda East—Lab.) on February 14 asked the Parliamentary Secretary, Ministry of War Transport, why was it that in some cases members of clerical staffs travelling in company with other workers were not accorded the same privilege of having workmen's fares.

Mr. P. J. Noel-Baker in a written answer stated: Workmen's tickets originally were intended only for artisans, mechanics and labourers who travelled in the early morning hours. Where they are now issued, however, on the main-line railways and on certain services of the London Passenger Transport Board, their availability has been extended usually to all travellers before a certain hour. A further extension has been made to workmen who are employed on shift turns of duty and who must, therefore, travel outside the normal hours of issue. This extension has been limited to artisans, mechanics and labourers. It has been decided, after full consideration that any general extension outside the normal hours would be both impracticable and undesirable.

Refreshment Charges on Leave Trains

Wing-Commander E. Errington (Bootle—C.) on February 13 asked the Secretary of State for War whether he was aware that a soldier coming back from France on a leave train was charged 2s. 8d. for a mug of tea, four sandwiches and two cakes, in the N.A.A.F.I. tea car; and whether he would take steps to reduce these prices for serving personnel coming on leave.

Sir James Grigg (Secretary of State for War) in a written answer stated: In N.A.A.F.I. restaurants, including buffet cars on leave trains, tea costs 1d. a cup, salad 1d., cakes 1d., 1½d. or 2d. and sandwiches between 3d. and 6d. a round. These prices compare favourably with prices charged in cafes and tea shops elsewhere. It is of course just possible that a mistake was made in the case mentioned by Wing-Commander Errington.

Radio-Telephony Sets on Locomotives

Sir Dymoke White (Fareham—C.) on February 14 asked the Parliamentary Secretary, Ministry of War Transport, if he would consult with the railway companies on the possibility of their engines being fitted with radio-telephony sets, with correspondingly suitable sets at control points, in order to relieve the anxiety of engine drivers proceeding blind, and thus slowly, in bad weather, and incidentally to do away with railway delays.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) stated in a written answer: I am advised that there is as yet no wireless apparatus which would afford a satisfactory remedy for the failure to observe signals. At present it is not practicable to carry out the experiments required to perfect the present apparatus. I hope that this work will be undertaken after the war.

Blackout on Carriage Windows

Mr. Vernon Bartlett (Bridgwater—Ind.) on February 14 asked the Parliamentary Secretary, Ministry of War Transport, what steps he was taking to encourage the railway companies to remove unnecessary blackout paint from carriage windows.

Mr. Noel-Baker stated in a written answer: I regret that it is not practicable with the present shortage of labour to remove a part only of the existing blackout paint on railway-carriage windows, and

that for security reasons the railways cannot yet be permitted to remove it all.

Accidents Statistics

Sir Herbert Williams (South Croydon—C.) on February 7 asked the Parliamentary Secretary, Ministry of War Transport, whether he was aware that the statistics in the Library relating to traffic accidents related only to the months of October and November, 1944; and that the analysis in respect of causation in respect of the class of vehicle primarily responsible failed to differentiate between accidents to cyclists and accidents caused by cyclists, and would he arrange for further analysis.

Mr. Noel-Baker stated in a written answer: In accordance with a proposal made in a question put to me on November 15, 1944, by General Sir George Jeffreys (Petersfield—C.), I gave instructions on that day that a copy of my Ministry's monthly statement of road accident statistics should thereafter be placed in the Library of the House. The statement for December, 1944, is now available, and is in the Library. I have placed there also all the monthly statements issued since January, 1943. The statements now show the number of cyclists reported to be killed or injured, and the number of cases of fatal injury in which the police report that, in their opinion, a pedal cycle was primarily involved. I regret that a more detailed analysis is not, at present, possible.

Civil Aviation Transport Agreements

Mr. Alfred Edwards (Middlesbrough East—Lab.) on February 14 asked the Parliamentary Secretary, Ministry of Aircraft Production, as representing the Minister of Civil Aviation, what His Majesty's Government had done to conclude reciprocal air transport agreements to further British post-war civil aviation; and with which States negotiations were on foot.

Mr. A. T. Lennox-Boyd (Parliamentary Secretary, Ministry of Aircraft Production) stated in a written answer: His Majesty's Government has signed the International Air Services Transit Agreement which provides as between the signatories the right of transit over territory and the right of making non-traffic stops. This agreement remains open for signature and hitherto 32 countries have signed. The United Kingdom Government also has signed the interim agreement for the establishment of the Provisional International Civil Aviation Organisation. His Majesty's Government is in constant touch with other British Commonwealth countries and agreement has been reached for the operation of Commonwealth Air Services, subject to the exigencies of the war. The United Kingdom Government also is in touch with a number of foreign Governments and is discussing with them the conditions under which their and our mutual interests can best be met as and when it becomes possible to establish reciprocal air services.

Bus Fares

Colonel A. M. Lyons (Leicester East—C.) on January 24 asked the Parliamentary Secretary to the Ministry of War Transport whether his attention had been called to a pronouncement by Sir John Maxwell, the Northern Regional Transport Commissioner, speaking at Newcastle in December last, to the effect that changes by way of increased bus fares were bound to take place so long as omnibus undertakings were chiefly private companies; and whether this announcement was made with his approval, and, if not, what steps he had taken to discourage officials holding semi-

judicial appointments from making political statements.

Mr. Noel-Baker wrote in reply: I have asked the Commissioner to let me have a report of what he said and I will communicate further with Colonel Lyons as soon as possible.

Rural Bus Services

Mr. H. W. Butcher (Holland-with-Boston—Lib. Nat.) on January 24 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware of the needs for more widespread routes and more frequent services of buses in rural districts after the war; and whether plans for these were now being prepared.

Mr. Noel-Baker in a written answer stated: The Minister of War Transport is now trying to improve the bus services in rural districts, so far as manpower and other resources permit. In due course after the war, these bus services again will be governed by the provisions of the Road Traffic Acts of 1930 to 1937. Under these Acts, all services are licensed by the Area Traffic Commissioners; in deciding on applications, the Commissioners must have regard, amongst other things, to the provision of adequate, suitable and efficient services, and to the provision of unremunerative services, if there is a public need to be served.

London Taxi-Cabs

Sir Ralph Glyn (Abingdon—C.) on January 24 asked the Secretary of State for the Home Department how many taxi-cabs in the Metropolitan police area were now off the streets awaiting repair; how many had been licensed by the Commissioner of Police and how many had been refused as their condition fell below the standard; and what steps had been taken to put taxi-cabs in repair and to order new ones to meet the urgent post-war requirements for transport.

Mr. Herbert Morrison (Home Secretary) in a written answer stated: I am informed by the Commissioner that, of a total of 5,297 taxi cabs licensed by the Metropolitan Police, about 400 are at present off the streets awaiting repair. In addition, there are some 1,200 cabs, which have not been presented for current licensing and are laid up for various reasons, including overhaul, lack of spare parts and insufficiency of labour to carry out repairs. None of this latter group of vehicles has been presented for current licensing; but it must not be assumed that if these 1,200 cabs could all be made serviceable drivers would be available for the full number. The taxi-cab trade is suffering, like other trades, from shortage of the materials and labour necessary to keep the vehicles in proper repair; and these difficulties are not easy to solve in present conditions, but I am making inquiries and will consider whether anything can be done to improve the position. The question of securing an output of new cabs after the war is primarily a matter for the trade and the manufacturers.

Northern Roadways Limited

Mr. J. J. Davidson (Glasgow, Maryhill—Lab.) on February 7 asked the Parliamentary Secretary, Ministry of War Transport, when the Scottish organisation known as Northern Roadways Limited was established; and what was the number of buses or other petrol-driven vehicles bought and now being run by this firm since their establishment.

Mr. Noel-Baker in a written answer stated: I understand that Northern Roadways Limited was registered as a company

on June 20, 1941. It operates 28 public-service vehicles in Scotland; 24 of them are owned by the company; the other 4 are hired. The company holds no carriers' licences or defence permits for goods vehicles in the Scottish region.

Iron & Steel Disposals Limited

Lieut. Hugh Lawson (Skipton—Commonwealth) on February 14 asked the Minister of Supply what was the relationship between his Ministry and Iron & Steel Disposals Limited; and what proportion of the share capital of this company was owned by the Government.

Sir Andrew Duncan (Minister of Supply): Iron & Steel Disposals Limited is a non-profit making company, incorporated under the Companies Act, 1929, with a nominal share capital of £1,000; none of which is owned by the Ministry. It operates on instructions from the Ministry. It is financed from public funds and the assets of the company, on winding up, will be handed over to the Ministry.

Lieut. Hugh Lawson on February 14 also asked the Minister of Supply what was the value of surplus iron and steel disposed of by Iron & Steel Disposals Limited, since it was set up; and what was the value of similar material disposed of through other agencies during the same period.

Sir Andrew Duncan: The value of the surplus iron and steel disposed of since July, 1943, by Iron & Steel Disposals Limited is £1,312,000. The value of that disposed of through other channels during this period is not readily available.

Staff and Labour Matters

Road Haulage Wages

At a meeting on February 8, 1945, the Road Haulage Central Wages Board decided to request the Minister of Labour & National Service to make an Order giving effect to the proposals of the board for the amendment of the existing Road Haulage Wages Order governing the statutory remuneration of road haulage workers falling within the scope of the board. This decision was reached after the board had considered the reports from the area wages boards on the proposals and the objections which had been lodged against the proposals.

The board proposes that the statutory remuneration be increased by 4s. a week, except in the case of certain classes of workers under 18 years of age, for whom the increase proposed is 2s. 6d. a week. The proposed amendments will not come into force unless and until the Minister of Labour & National Service has made an Order confirming them, and due notice will be given if such an Order is made.

Training for Business Administration

A serious problem for many young men and women at present in the forces is whether there will be opportunities of careers in commerce, or on the executive and administrative side of industry, and what are the prospects of advancement to higher salaried posts. In most cases they will have had little or no previous business experience and they will be considerably older than the normal age for beginning a business career. At the same time, by reason of their war service, they may well have developed qualities which should be of great value in such employment.

The Minister of Labour & National Service is anxious to help these ex-service men and women to make good the loss of opportunities of training and experience at a vital age due to their years of war service. He wishes the question to be examined, particularly with reference to the need for

courses of training in the theory and practice of business administration and salesmanship. Accordingly he has set up a committee of representative business men under the chairmanship of Sir Frank Newson-Smith, with the following terms of reference:—

(1) To consider how far the absorption into industry and commerce of young men and women released from war service who desire to begin or resume a business career would be facilitated by the provision of training in business administration and salesmanship.

(2) To make recommendations about suitable courses of training.

(3) To advise on the best method of securing the general recognition of such courses as basic training for men and women who wish to take up administrative or executive posts and whose training has been either prevented or interrupted by their war service.

Indian Railway Budget Speech

A Reuters report from New Delhi states that Sir Edward Benthall, Member, War Transport Department, Government of India, in the course of his railway budget speech on February 15, said that estimates indicated a surplus of over £31½ million in the 1944-45 business year, and of over £27½ million in 1945-46, of which general revenues would receive £24 million in each year.

In 1944-45, traffic receipts were expected to reach about £160½ million, or about £21½ million more than in the previous year; traffic receipts for 1945-46 were estimated at £165 million. The balance in reserve would be over £22½ million at the end of 1944-45, and about £21½ million at the end of 1945-46.

About £71 million would have been spent on locomotives during the period 1943-47.

Sir Edward Benthall is reported to have said: "Indian railways are now almost 100 per cent. Indian-owned, and they are 99½ per cent. operated by Indians and Anglo-Indians. They are an asset of which India can well be proud, but the lessons of the past show that their financial resources must be handled with sedulous care." After declaring that the situation over the last two or three years had caused great anxiety, Sir Edward said: "In a few months, when the wagons come rolling in, we hope to be in a happier position to supply the needs of the country."

Retired Railway Officers Society

The annual general meeting was held at the Great Eastern Hotel, Liverpool Street, on February 13, when the report and accounts for the year 1944 were submitted and adopted. In the unavoidable absence of the President, Mr. H. R. Campfield, the Chair was taken by Mr. J. F. Bradford, immediate Past-President. The report showed that seven monthly meetings were held during the year. The total membership is now 120 and during the year 9 members were elected and 3 ordinary members were made life members. The accounts showed a credit balance of £112 15s. 10d.

The Chairman proposed the election of Major-General G. S. Szlumper as President for the ensuing year. This was seconded by Mr. J. Pike and carried with acclamation. The Hon. Treasurer, Mr. J. W. Lovejoy,

and the Hon. Auditors, Lt.-Colonel Wilson and Mr. A. Howie, were re-elected, as was the Hon. Secretary, Major A. S. Mills. A donation of 20 guineas from the reserve fund was voted to the Red Cross Fund.

At this meeting also Messrs. E. A. Clear and Charles Jones, who joined the society in 1925, were elected to life membership. The death was reported of Mr. A. E. Dolden (life member) in his 91st year. The election of Mr. Alan Cobb, who recently retired from the position of Locomotive Running Superintendent, Southern Railway, was proposed by Mr. A. Howie and seconded by Lt.-Colonel Wilson, and carried unanimously.

THE ATCHAFALAYA FLOODWAY VIADUCT, N.O.T. & M.R.R.

(Concluded from page 184)

combined trestle legs and caps, and 28 sets for the spans. The two former kinds of shuttering were fabricated in two L-shaped halves. Reinforcement for the footings and trestles was assembled into cages at a central yard, run out to site and set from the gantry. Specifications limited the dropping of the concrete in the trestle legs to 2 ft. 6 in., so two hoppers with a telescopic pouring pipe were used. A platform, suspended from the gantry, facilitated the trestle concreting and the hoppers and pipe were similarly suspended. A flexible shaft vibrator was lowered through the pipe to vibrate the concrete in the trestle legs. An hour was allowed for settlement of the concrete in the legs before the cap was poured; the cap reinforcement was set in position and blocked during this interval. Anchor bolts for shoes to support the girder spans were rigidly held in position by templates integral with the shuttering. Seats for the bearings were cast a little above the final level required, and, after hardening, were bush-hammered and rubbed down with carborundum to the correct level.

The girder span and decking shuttering was placed for alternate spans and the concrete was allowed to set in it for from seven to fourteen days, according to the weather conditions, before the intermediate spans were poured. The shuttering was all in one piece for the full width of the decking, and the sections were removed by springing them slightly to loosen them from the spans. This shuttering was supported by two longitudinal beams during the pouring, and was moved and set as a unit; two of the five transverse beams extended beyond the decking for lifting. A short section at each end of the shuttering, cut on the diagonal, was made easily detachable to allow of the removal of the middle section in one piece and the subsequent removal of the end sections by hand. Flexible shaft vibrators were again used for the spans.

The remarkable economy effected by the standardisation or duplication of the trestles and spans is shown by the fact that the viaduct cost only about £29 per lin. ft. excluding permanent way. The structure was designed and set out and field work begun before the U.S.A. entered the war and before steel became scarce. The work was carried out under the general supervision of Mr. C. S. Kirkpatrick, Chief Engineer of the railway. The contractors were Messrs. Brown & Root, Inc., of Houston, Texas. The contract price of the viaduct was just under £550,000, according to our American contemporary *Engineering News-Record*, to which we are also indebted for the illustrations.

Notes and News

East Indian Railway Company.—Notice is given that the registers of East Indian Railway annuities Class "A," "B," "C" and "D" will be closed from March 1 to March 31 inclusive, for the purpose of preparing warrants payable April 3.

Mexican Railway Tariffs.—The Mexican Railway Company states that from January 1 the company has been authorised to increase its tariffs by 23 per cent. The advance in tariffs has been granted to meet increased cost of wages sanctioned by the Mexican Government.

Canadian Pacific Railway Company.—The directors have declared a dividend of 3 per cent. (75 cents on each share) on the ordinary stock for 1944. The declaration of any future dividend is dependent on the then current and prospective conditions.

European Clerk Required.—A European clerk is required for the locomotive department of the Tanganyika Railways for one tour of 24 to 36 months in the first instance. For full particulars of this appointment see Official Notices on p. 195.

Railway Advisers Required.—A manufacturer who is preparing the design of a post-war railway product would like to contact active or retired carriage or locomotive senior engineers or chief draughtsmen to act as advisers. For full particulars see Official Notices on p. 195.

"General Steam Navigation" Locomotive.—On Tuesday Mr. Robert Kelso, Chairman of the General Steam Navigation Co. Ltd., named a new "Merchant Navy" class locomotive of the Southern Railway *General Steam Navigation*. The ceremony took place at Waterloo Station. An account of the proceedings will appear next week.

Chilean State Railway Receipts.—The Chilean State Railways estimate that their 1945 income will be approximately 119,000,000 pesos less than their previously-estimated receipts. Accordingly, the railways are seeking authority to increase freight and passenger rates to cover the deficit. The proposed increase will amount to a little over 8.7 per cent.

Freight Rate Reductions in Nicaragua.—A 20 per cent. reduction in freight rates, effective from December 19, 1944, until December 31, 1945, has been granted by the Nicaraguan railways on all export shipments of coffee, and a legislative decree, effective December 16, reduced the coffee export tax by 50 per cent. In recent weeks railway traffics had been showing a slight downward trend.

New Railway Fuel in Bolivia.—A new fuel made of bran, charcoal dust, yareta, and thola or tarquin is reported to have been adopted successfully for locomotive fuel in Bolivia. It is stated that one factory is engaged in pressing these materials into briquettes, which, in some cases, are impregnated with fuel oil or used lubricating oil. This is one of the attempts to lessen the demand for imported coal and coke.

Institute of Transport 1945 Examinations.—The closing date for the receipt of entries for the Institute of Transport examinations to be held in May, 1945, is April 1 next. The Institute states that, in view of the difficulties which some students have had in obtaining books for certain of the subjects, new candidates will be permitted to enter for part I of the graduateship examination by offering two subjects from that part and one subject from part II. Part II may be taken by entering for two

of its subjects and one subject from part I. The graduateship examination would be completed in 1946 by satisfying the examiners in the three subjects not taken in 1945. A similar concession will apply to the parts of the associate membership examination.

Peruvian National Railways.—As a result of the operating deficit incurred during last year, the Peruvian National Railways have been authorised to increase freight rates by 20 per cent. on all articles, except foodstuffs, coal, salt, and a few other staple items.

Railway Extension Survey in Peru.—The Danish firm of Christiani & Nielsen, the headquarters of which is now in New York, is stated to be preparing a survey for the extension of the Tablonas-Huallanca railway in Peru for a further 110 km. (68 miles) from Huallanca to Huarás.

Institute of Transport Twenty-Fifth Anniversary Meeting.—A meeting to commemorate the twenty-fifth anniversary of the first meeting of the Institute of Transport will be held on March 22 next at 5.30 p.m. at the Institution of Civil Engineers, Great George Street, London, S.W.1. The commemorative address will be delivered by Sir Cyril Hurcomb, K.C.B., K.B.E., M.Inst.T., Past-President. The first meeting of the Institute was held on March 22, 1920, also at the Institute of Civil Engineers.

The Waverley "Dandy Coach."—The well-known "dandy coach" of the North British Railway, which has been exhibited at Waverley Station, Edinburgh, for nearly 20 years, was moved on February 10 to the York Railway Museum of the L.N.E.R. Horse traction for passenger traffic was used on the branch from Drumburgh Junction to Port Carlisle from August 28, 1856, until April 4, 1914. The vehicle which has been preserved at Waverley Station was in service between Drumburgh Station and Port Carlisle from 1861 until 1914.

Post-War Smoke Abatement.—A large number of technical fuel experts and members of local authorities is to attend today (February 23) in London a joint conference of the Institute of Fuel and the National Smoke Abatement Society, in connection with post-war smoke abatement. The conference is to be opened by Mr. T. Smith, M.P., Joint Parliamentary Secretary to the Ministry of Fuel & Power, and the subjects to be discussed include: (1) A Statement of the Problem, by Mr. G. M. B. Dobson, D.Sc., F.R.S. (Chairman, Atmospheric Pollution Research Committee); (2) The Effects on Civilisation of Atmospheric Pollution, by Major S. F. Markham, M.P., M.A., B.Litt.; (3) Domestic Smoke, by Mr. A. Blackie, M.A., F.Inst.P. (of the Fuel Research Station); (4) Railway Smoke, by Mr. M. G. Bennett, M.Sc., F.Inst.P. Mr. Bennett, who is Assistant (Lighting & Heating) to the Chief Civil Engineer, L.M.S.R., is Chairman of the Railways Fuel Economy Committee.

South African Railways & Harbours.—The result of working of the combined railway, harbour, steamship and airway services for September, 1944, was a net surplus of £38,804. This improvement compared with the deficits which have occurred during recent months is stated to be entirely attributable to fortuitous profits resulting from the sale of Government securities and an adjustment in respect of the value of stores stocks. Expenditure for the month was £138,654 more than that expected, mainly on account of greater maintenance and operating costs.

The results for the period April to September, 1944, reflect a net deficit of £607,288, compared with a surplus of £480,761 for the first six months of the previous financial year. Revenue increased on account of the large volume of passenger, goods and coal traffic handled; but expenditure was greater, by reason of increased salaries and wages, higher cost-of-living allowances, and additional working and maintenance expenses.

French Derailment.—A Reuters message from Paris states that five passengers were killed and 50 injured when the Dijon-

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices	
			Feb. 20, 1945	Rise/ Fall
G.W.R.				
Cons. Ord.	62½	55	57xd	— ½
5% Con. Pref.	122½	114½	119½xd	— 1
5% Red. Pref. (1950) ..	110½	104	105 xd	— 1
5% Rt. Charge	135½	128	134½	—
5% Cons. Guar.	134½	125	132½xd	—
4% Deb.	118½	112½	116½	—
4% Deb.	118½	114	118½	—
4% Deb.	124½	119½	122½	—
5% Deb.	137	129½	136½	—
2½% Deb.	77	73½	75½	—
L.M.S.R.				
Ord.	34½	27½	29	— ½
4% Pref. (1923)	64½	55½	59½	— ½
5% Pref.	81	72½	78½	— ½
5% Red. Pref. (1955) ..	105½	102	104	—
4% Guar.	107½	99½	104½	—
4% Deb.	111½	104	108	+ ½
5% Red. Deb. (1952) ..	111	108	108½	—
L.N.E.R.				
5% Pref. Ord.	10½	7½	7½	— ½
Def. Ord.	5½	3½	4	— 2
4% First Pref.	63½	55½	57½xd	— 1
4% Second Pref.	35½	28½	29½xd	— 1
5% Red. Pref. (1955) ..	102½	97½	101½xd	— 1
4% First Guar.	105½	96½	102½	—
4% Second Guar.	95½	88½	94½	—
3% Deb.	88½	80½	86	—
4% Deb.	110½	103½	107	—
5% Red. Deb. (1947) ..	105½	101½	102½	—
4% Sinking Fund				
Red. Deb.	107	104½	104½	—
SOUTHERN				
Pref. Ord.	80½	71½	76xd	— 1½
Def. Ord.	26½	23	24½xd	— 1½
5% Pref.	122	113½	118½xd	— 1½
5% Red. Pref. (1964) ..	117½	112½	113½xd	— 1½
5% Guar. Pref.	134	125½	131½xd	— 1½
5% Red. Guar. Pref. (1957) ..	115½	112½	113½xd	— 1½
4% Deb.	118	110	115½	—
5% Deb.	135½	127	135	+ 1
4% Red. Deb. (1962-67) ..	111½	107½	109½	—
4% Red. Deb. (1970-80)	112	108½	110½	—
FORTH BRIDGE				
4% Deb.	107	103	105	—
4% Guar.	106½	102	105	—
L.P.T.B.				
4½% "A"	125	119	122½	—
5% "A"	133½	128	132½	—
3% Guar. (1967-72) ..	99½	98	99	—
5% "B"	124½	118½	123½	—
"C"	72½	64½	66½xd	— 2½
MERSEY				
Ord.	35½	33	36	—
3% Perp. Pref.	72	66	70	—
4% Perp. Deb.	105	103	106	— 1
3% Perp. Deb.	85½	79½	84	—
IRELAND*				
BELFAST & C.D.				
Ord.	9	6	6½	—
G. NORTHERN				
Ord.	33½	19	27½	— ½
Pref.	49	37	44½	— 1
Guar.	70	57½	70½	—
Deb.	90½	81½	92½	+ ½
IRISH TRANSPORT				
Common	—	—	74	— 1
3% Deb.	—	—	98½	—

* Latest available quotation

OFFICIAL NOTICES

A MANUFACTURER who is now preparing the design of a post-war Railway product desires to contact active or retired Carriage or Locomotive Senior Engineers or Chief Draughtsmen to act as advisors (either part time or whole time). Primarily post-war, but preferably able to devote some spare time immediately. Replies which will be treated in strictest confidence should be sent to Box No. 132, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Southern Railway Company

NOTICE is hereby given that the next ANNUAL GENERAL MEETING of the Southern Railway Company will be held at Charing Cross Hotel, Strand, in the County of London, on Thursday, the 8th day of March, 1945, at 11.30 a.m. for the purpose of receiving the Accounts for the past year, and transacting the general business of the Company appointed to be done at an Ordinary Meeting.

S. E. CLARK,
Acting Secretary.

Waterloo Station,
London.
15th February, 1945.

Marseilles express was derailed on February 9, after a collision with a stationary petroleum wagon about 7½ miles from Lyons. It is stated that the train was endeavouring to make up 25 min. lost on its schedule at the time of the collision.

Railway Companies (Accounts & Returns) Order.—The Minister of War Transport on February 8 made the Railway Companies (Accounts & Returns) Order, 1945 (S.R. & O. 1945, No. 151).

Caprotti Valve Gears Limited.—At an extraordinary general meeting of Caprotti Valve Gears Limited held at the Worcester Engineering Works, Worcester, on January 26 a special resolution was passed that the company be wound up voluntarily and that Mr. Lawrence William Robson, of 31, High Street North, Dunstable, Chartered Accountant, be appointed as the liquidator. As recorded in *The Railway Gazette* of December 29, the trading rights of Caprotti Valve Gears Limited have been acquired by Associated Locomotive Equipment Limited, locomotive engineers, of Worcester Engineering Works, Worcester, with which company the interests of Caprotti Valve Gears Limited have for some years been identified.

Great Western Railway.—The net revenue of the Great Western Railway Company for the year 1944 is £6,940,129, an increase of £147 compared with the net revenue of the company for the year 1943. The sum available for distribution, including the balance of £293,453 brought forward from the previous year, is £7,233,582. After meeting the interest and dividends on the pre-ordinary stocks, there remains a balance of £2,243,813 and the directors have decided to recommend the payment of a dividend for the half year ended December 31, 1944, of £2 10s. per cent. on the consolidated ordinary stock, making £4 10s. per cent. for the year, leaving a balance to be carried forward of £311,975. The dividend warrants will be posted on or about March 14.

Southern Railway Company.—The directors of the Southern Railway Company announce that for the year 1944 the total net revenue amounts to £7,000,052, an increase compared with that for the year 1943 of £866. The balance brought forward from the previous year was £85,602, making the total available for distribution £7,085,654. After meeting the interest and dividends on the pre-ordinary stocks the amount available for dividend on the ordinary stocks for the year is £2,091,209. The directors have resolved to recommend the proprietors to declare the following dividends: a final dividend of 2½ per cent.

OVERSEAS EMPLOYMENT: EUROPEAN
CLERK required for the Locomotive Department of the Tanganyika Railways for one tour of 24 to 36 months in the first instance. The post is non-pensionable, but there is a Provident Fund. Salary £300 rising to £480 a year. Initial salary above the minimum may be offered to a well-qualified candidate. Cost of living allowance for married men between £80 and £105 a year according to dependants and for single men up to £50 a year, according to salary. Free quarters and passages. Candidates should have had experience as a Clerk in the locomotive workshop and locomotive accounts section of a British Railway.

Written applications (no interviews), giving the following essential details: (1) full name; (2) date of birth; (3) industrial training and experience; (4) name and address of present employers; (5) details of present work, should be sent to The Secretary, Overseas Manpower Committee (Ref. 1705), Ministry of Labour and National Service, York House, Kingsway, London, W.C.2. Applications will not be acknowledged.

Great Western Railway Company

NOTICE IS HEREBY GIVEN that the ANNUAL GENERAL MEETING of the Proprietors of this Company will be held in London, at the Great Western Royal Hotel, Paddington Station, on Wednesday, the 7th day of March, 1945, at Half-past Eleven o'clock in the morning, for the general purposes of business.

CHARLES J. HAMBRO, Chairman.
F. R. E. DAVIS, Secretary.
Paddington Station,
London, W.2.
19th February 1945.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

on the preferred ordinary stock, making, with the interim dividend of 2½ per cent. already paid, 5 per cent. for the year; 2 per cent. for the whole year on the deferred ordinary stock. For the previous year a dividend of 5 per cent. was paid on the preferred ordinary stock, and 2 per cent. was paid on the deferred ordinary stock. The balance carried forward is £82,074 compared with £85,602. It is proposed to pay the dividends, less tax on March 23.

London & North Eastern Railway Company.—The net revenue of the London & North Eastern Railway Company for the year 1944 is £10,753,279, an increase of £97,838 as compared with the net revenue for the year 1943. To this has to be added profit on realisation of investments £35,066, and the balance brought forward from 1943 of £80,110, making the total sum available for appropriation £10,868,455. After meeting the interest on the debenture stocks and the dividends on the guaranteed stocks, and setting aside £200,000 to contingency fund, the directors recommend that, subject to final audit, dividends be paid by warrant as follow: final dividend of 2 per cent. on the 4 per cent. first preference stock, making, with the interim dividend of 2 per cent. already paid, 4 per cent. for the year; final dividend of 2½ per cent. on the 5 per cent. redeemable preference stock (1955), making with the interim dividend of 2½ per cent. already paid, 5 per cent. for the year; and final dividend of 1½ per cent. on the 4 per cent. second preference stock, making, with the interim dividend of 1 per cent. already paid, 2½ per cent. for the year; in each case less tax, leaving a balance of £81,479 to be carried forward. Subject to approval of these recommendations by the stockholders, warrants will be posted on or about March 14.

London Passenger Transport Board.—The London Passenger Transport Board announce that the net revenue of the board for the year 1944, after giving effect to the estimated operation of the financial arrangements provided for in the Railway Control Agreement, and including the balance of the London Transport "C" stock interest fund and a sum of £5,597 arising from an estimated adjustment of the board's proportion of the railway control pool for 1940, amounts to £4,673,286. This amount compares with £4,747,280 for the previous year. The reduction of £73,994 is almost wholly accounted for by a decrease of £51,890 in the special credit arising from the accounts for the year 1940 and of £21,144 in the sum brought in from the "C" stock interest fund. The payment of interest on the prior charge London Trans-

port stocks requires £3,901,381 leaving, for the service of the London Transport "C" stock, a balance of £771,905. A final payment of interest on the London Transport "C" stock for the year ended December 31, 1944, will be made by the board's registrars, the Bank of England, on March 15, 1945, to all holders of London Transport "C" stock registered in the books of the Bank of England at the close of business on February 19, 1945, of 1½ per cent. actual, less tax, making, with the interim payment of 1½ per cent. on August 25, 1944, a total of 3 per cent. actual for the year, compared with 3½ per cent. for the previous year. The sum of £941 remaining after the payment of this interest, being less than one-eighth of 1 per cent. on the London Transport "C" stock outstanding, in accordance with Section 39 (7) (ii) of the London Passenger Transport Act, 1933, has been transferred to the London Transport "C" stock interest fund. The board also announces that it will shortly transmit to the Minister of War Transport the report and statement of accounts and the auditors' report for the year ended December 31, 1944. Copies of the annual report and statement of accounts will not be posted to the stockholders, because of the need to conserve paper, but copies will be on sale, price 6d. at the offices of the board, 55, Broadway, Westminster, S.W.1, on and after March 8, 1945.

Contracts and Tenders

Below is a list of orders placed recently by the Egyptian State Railways:—
General Electric Co. Ltd.: Electric lamps.
British Thomson-Houston Co. Ltd.: Lamps.
A. Balfour & Co. Ltd.: Hacksaw blades.
Docker Brothers: Enamel, etc.

David Brown & Sons (Huddersfield) Ltd. has opened an area office at 70, Queen Square, Bristol, 1. The telephone number is Bristol 21830 and the telegraphic address is Gearing, Bristol.

Forthcoming Meetings

March 1 (Thu.).—The Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. 5.30 p.m. "Stray Losses in Synchronous Electrical Machinery," by Mr. P. Richardson A.M.I.E.E.

March 8 (Thur.).—Diesel Engine Users Association, at the Court Room, Caxton Hall, Westminster, S.W.1. 2.30 p.m. Discussion on "Symposium on Engine Cooling-Water Systems."

Railway Stock Market

After showing persistent strength both British Funds and industrial shares became slightly less firm, although the general tendency of stock markets was steady. There was little selling apart from some profit-taking in stores shares and recently-active industrials, but sentiment appeared to be affected slightly by absence of any marked improvement in demand. With the upward trend in prices reducing gilt-edged yields, there is a tendency for the yield structure of markets generally to be further reduced. The return on many leading industrials is now very small; but buying is much more selective than was the case a few months back, attention naturally being centred on shares of companies considered to offer scope for higher profits and dividends after the war.

Home rails remained neglected and idle, although looking particularly attractive in their "xd" levels when the high yields are considered and also the good grounds for expecting dividends at around current rates to be maintained for at least another two years. With the developments announced for helping industry to face post-war problems, sentiment is perhaps affected by the feeling that the railways are being left out in the cold. On the other hand, there is every reason to believe that the railways and their stockholders are fully alive to their claims for fair post-war treatment both in relation to other forms of transports and in connection with special problems, such as abnormal wear and tear of rolling stock and equipment. The tendency is still to

await the annual meetings in the hope that it may then be possible to assess the outlook more clearly; although there are many unknown factors apart from Government policy, including negotiations with interests representing other forms of transport. When judged in relation to the small return on leading industrial shares, yields on home rail junior stocks are beginning to have a fantastic appearance, ranging from over 9½ per cent. on L.N.E.R. second preference to rather more than 7½ per cent. on Great Western ordinary. That on L.M.S.R. ordinary exceeds 8½ per cent. and on Southern deferred over 8 per cent. Yields on L.N.E.R. first preference, L.M.S.R. preference and Southern preferred are also at high rates, when it is remembered that there should be every reason to expect that these stocks will continue to receive their full dividends when Government control ends.

Canadian Pacific was a good feature on the higher dividend, which rewards stockholders for their patience in past years. The price moved up sharply to 16½ at which the yield is not far short of 9 per cent., suggesting doubts whether the 5 per cent. dividend rate will be maintained in view of the directors' reminder that future dividends will be dependent on the then current and prospective conditions. C.P.R. 4 per cent. non-cumulative preference stock improved to 69 with the 4 per cent. debentures 105.

Argentine rails received more attention and improved in price, sentiment being assisted by indications that the

authorities in the Republic may be adopting a more anti-Axis attitude. On the other hand, no doubt in sympathy with a downward tendency in European bonds and similar securities, French rail bonds moved lower after an earlier gain; Nord receded from 99 to 98, and Midi and Orleans from 82 to 81.

Among home rails, Great Western was 57½ xd, compared with 58½ a week ago, with L.M.S.R. 29½, compared with 29½. L.M.S.R. senior preference lost half a point at 78, and the 1923 preference was a point down at 59½. L.N.E.R. first preference was 57½ xd, against 59 a week ago, and the second preference 29½ xd, compared with 30½, with Southern deferred 24½ xd, against 25½, and the preferred 76½ xd, against 77½ a week ago. Transport "C" moved down from 69½ to 66 xd; the reduction in dividend from 3½ per cent. to 3 per cent. was not generally expected in the market, although the previous year's increase was due to special credits. Transport "C" remains on a relatively moderate yield basis because of the expectation of higher dividends when control ends.

Buenos Ayres Great Southern rallied from 11½ to 11½, and where changed, fractional gains were also shown in other Argentine rail stocks. United of Havana 1906 debentures were slightly lower at 25½ and San Paulo ordinary maintained at 58. Mexican Railway issues were better on the higher traffics, although the latter are due to the 23 per cent. increase in tariffs granted to provide increased wages.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffic for week		No. of Weeks	Aggregate traffic to date			Shares or Stock	Prices						
			Total this year	Inc. or dec. compared with 1942/3		Totals		'Increase or decrease		Highest 1944	Lowest 1944	February 20, 1945	Yield % (Based on 1944)			
						1943/4	1942/3									
South & Central America	Antofagasta (Chili) & Bolivia	834	11.2.45	£ 24,160	—	£ 8,380	6	£ 180,910	£ 185,770	—	£ 4,860	Ord. Stk.	13½	9½	10	NI
	Argentine North Eastern ...	753	10.2.45	19,546	—	687	32	635,306	521,620	+	113,686	" "	6½	4½	7	NI
	Bolivar ...	174	Jan., 1945	5,643	+	954	4	5,643	4,689	+	954	6 p.c. Deb.	18½	7½	7½	NI
	Brazil ...	2,773	10.2.45	162,000	+	26,534	32	4,420,066	3,631,800	+	788,266	Bonds	19½	15	18	NI
	Buenos Ayres & Pacific	5,080	10.2.45	234,600	—	13,533	32	6,855,933	6,259,066	+	596,867	Ord. Stk.	14½	9½	11½	NI
	Buenos Ayres Great Southern	1,924	10.2.45	72,866	+	1,866	32	2,393,333	1,956,400	+	436,933	" "	13½	9½	10½	NI
	Buenos Ayres Western	3,700	10.2.45	199,993	+	18,320	32	6,128,040	5,292,953	+	835,087	" "	10½	6½	8½	NI
	Central Argentine ...	Do.	—	—	—	—	—	—	—	—	—	Dfd.	4½	3	4½	NI
	Cent. Uruguay of M. Video	972	10.2.45	34,930	+	270	32	1,076,513	1,103,153	—	26,640	Ord. Stk.	5½	4	5	NI
	Costa Rica ...	262	Dec., 1944	10,108	—	5,700	26	121,331	130,194	—	8,863	" "	17½	14½	16	NI
	Dorada ...	70	Jan., 1945	31,928	+	5,908	1	31,928	26,020	+	5,908	1 Mt. Deb.	101	101	98½	6½
	Entre Rios ...	808	10.2.45	29,400	+	4,660	32	846,066	721,686	+	124,380	Ord. Stk.	6½	4½	5½	NI
	Great Western of Brazil	1,030	10.2.45	29,100	+	4,300	6	170,900	145,600	+	25,300	Ord. Sh.	38/-	23/3	28/9	NI
	International of Cl. Amer. ...	794	Jan., 1945	\$185,167	—	\$25,877	1	\$185,167	\$211,044	—	\$25,877	" "	—	—	—	NI
	Interoceanic of Mexico	22½	Jan., 1945	5,494	—	1,146	4	—	—	—	—	1st Pref.	1½	½	1	NI
	La Guaira & Caracas...	1,918	10.2.45	42,066	—	2,089	6	271,167	257,688	+	13,479	5 p.c. Deb.	88	79½	78½	6½
	Leopoldina ...	483	14.2.45	ps. 622,200	+	ps. 232,400	6	ps. 3,778,800	ps. 2,451,400	+	ps. 1,327,400	Ord. Stk.	5½	4½	4½	NI
	Mexican ...	319	Dec., 1944	15,817	—	3,197	26	99,688	103,465	—	3,777	" "	—	—	—	NI
	Midland Uruguay	382	15.2.45	5,853	—	9,445	6	17,069	27,130	—	10,061	Ord. Sh.	75/10	65/10	71/3	6½
Nitrate ...	274	9.2.45	\$54,673	+	\$9,380	32	\$1,897,566	\$1,690,327	+	\$207,239	Pr. Li. Stk.	79½	68	77	6½	
Paraguay Central	1,059	Jan., 1945	145,653	+	34,209	30	914,951	748,631	+	166,320	Pref.	9	10	9½	NI	
Peruvian Corporation	100	Dec., 1944	c 148,000	—	c 26,000	26	c 558,000	c 603,000	—	c 45,000	" "	—	—	—	NI	
Salvador ...	153½	—	—	—	—	—	—	—	—	—	Ord. Stk.	57½	46	58	6½	
San Paulo ...	156	Jan., 1945	2,960	—	2,960	30	17,960	40,710	—	22,750	Ord. Sh.	21/3	13/9	12/6	6½	
Taital ...	1,301	10.2.45	63,792	—	11,789	32	1,574,178	1,592,143	—	17,965	Ord. Stk.	4	2½	3	NI	
United of Havana	73	Dec., 1944	1,568	—	17	26	8,892	8,716	+	176	" "	—	—	—	NI	
Uruguay Northern ...																
Canada	Canadian Pacific ...	17,028	14.2.45	1,156,800	+	68,800	6	7,078,200	6,950,400	+	127,800	Ord. Stk.	17½	13½	16½	6½
	Barai Light ...	202	Jan., 1945	19,755	—	1,830	40	222,862	212,917	+	9,945	Ord. Stk.	129½	97½	127½	6½
India & Far East	Egyptian Delta ...	607	10.1.45	20,828	+	376	43	549,002	459,709	+	89,293	Pr. Sh.	7½	5½	7	NI
	Manila ...	—	—	—	—	—	—	—	—	—	—	B. Deb.	63½	58	64	NI
	Midland of W. Australia	277	Dec., 1944	19,294	—	11,545	26	120,301	196,643	—	76,342	Inc. Deb.	101½	99½	98½	6½
	Nigerian ...	1,900	25.11.44	374,576	—	59,634	4	—	—	—	—	" "	—	—	—	NI
	South Africa ...	13,301	13.1.45	1,022,999	+	123,552	41	37,703,966	34,281,178	+	3,442,788	" "	—	—	—	NI
	Victoria ...	4,774	April, 1944	1,188,999	—	212,162	—	—	—	—	—	" "	—	—	—	NI

Note. Yields are based on the approximate current price and are within a fraction of ½. Argentine traffics are given in sterling calculated @ 15 pesos to the £.
† Receipts are calculated @ 1s. 6d. to the rupee